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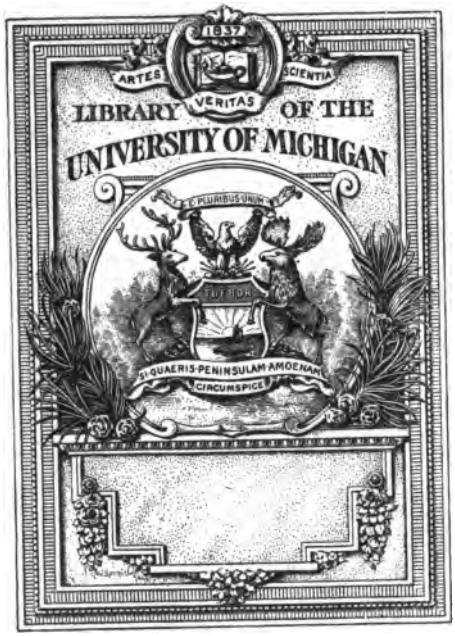

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AUCKLAND

University College

(UNIVERSITY OF NEW ZEALAND).

CALENDAR

FOR THE YEAR 1902.

Auckland:
PRINTED FOR THE UNIVERSITY COLLEGE.

MDCCCCII.

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PRINTED BY WILSON AND HORTON.

1902.

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Auckland University College.

Visitor:

THE HONORABLE THE MINISTER OF EDUCATION.

Council:

CHAIRMAN—THE HONBLE. SIR GEORGE MAURICE O'RORKE, M.A., HON. LL.D., SPEAKER OF HOUSE OF REPRESENTATIVES (A. 3)

THE MAYOR OF AUCKLAND, ALFRED KIDD, ESQ.*

THE CHAIRMAN OF THE AUCKLAND BOARD OF EDUCATION, LEMUEL JOHN BAGNALL, ESQ.*

THE MOST REVEREND WILLIAM GARDEN COWIE, D.D. (B. 1)

JACKSON PALMER, ESQ., M.H.R. (B. 3)

REVEREND J. H. SIMMONDS, (A. 2)

GERALD LOFTUS PEACOCKE, ESQ. (A. 1)

FREDERICK EHRENFRIED BAUME, ESQ., LL.B. (C. 2)

THE HONORABLE JOSEPH AUGUSTUS TOLE, B.A., LL.B. (B. 2)

WILLIAM CHISHOLM WILSON McDOWELL, ESQ., M.B. AND C.M. EDIN. (C. 3)

TOM UMFREY WELLS, ESQ., B.A. (C. 1)

Registrar:

DAVID WILLIAMSON RUNCIMAN, M.A.

* *Ex officio.*

A. Appointed by the Governor in Council.

B. Elected by the Members of the General Assembly resident in the Provincial District of Auckland.

C. Elected by Graduates.

1. Until May, 1902.
2. Until May, 1903.
3. Until May, 1904.

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Professors and Lecturers.

Professors:

Classics.

HENRY ARNOLD TALBOT-TUBBS, M.A. Oxford; sometime Craven Fellow, and Arnold Historical Prizeman.

English.

CHARLES WILLIAM EGERTON, M.A. Dublin; Senior Moderator and Gold Medallist, 1885; Vice-Chancellor's Prizeman in English Prose Composition.

Mathematics.

HUGH WILLIAM SEGAR, M.A. Cambridge; Second Wrangler, 1890; Smith's Prizeman, 1892.

Chemistry and Experimental Physics.

FREDERIC DOUGLAS BROWN, Hon. M.A. Oxford, B.Sc. London, F.C.S.

Biology and Geology.

ALGERNON PHILLIPS WITHIEL THOMAS, M.A. Oxford, F.L.S., F.G.S.; Burdett-Coutts University Scholar.

Music.

WILLIAM EDWIN THOMAS, Mus. Doc., Oxford; late Director of the Music at All Saints' School, Bloxham, Oxford; late Organist and Choirmaster of St. Clement's, Bournemouth; late Examiner of the London College of Music; late Hon. Local Examiner of R.A.M., London.

Lecturers:

Modern Languages.

(Vacant.)

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JANUARY—XXXI.

1	W	
2	TH	
3	F	
4	S	
5	S	
6	M	
7	TU	
8	W	
9	TH	
10	F	
11	S	
12	S	
13	M	
14	TU	
15	W	
16	TH	
17	F	Professorial Board meets.
18	S	
19	S	
20	M	Meeting of Recess Committee of Senate on
21	TU	results of December Examination held
22	W	about this time.
23	TH	Council meets on 21st.
24	F	
25	S	
26	S	
27	M	
28	TU	
29	W	
30	TH	
31	F	

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FEBRUARY—XXVIII.

1	S	
2	S	
3	M	
4	Tu	
5	W	
6	Th	
7	F	
8	S	
9	S	
10	M	
11	Tu	
12	W	
13	Th	
14	F	Professorial Board meets.
15	S	
16	S	
17	M	First Meeting of College Council, 1883, on 19th.
18	Tu	Council meets.
19	W	Senate meets at Dunedin. Applications for
20	Th	*ad eundem* degrees not received after this
21	F	date.
22	S	
23	S	
24	M	The Bowen Prize awarded during Session of
25	Tu	Senate.
26	W	
27	Th	
28	F	

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MARCH—XXXI.

1	S	
2	S	
3	M	First Term begins.
4	Tu	
5	W	
6	Th	
7	F	
8	S	
9	S	
10	M	
11	Tu	
12	W	
13	Th	
14	F	Professorial Board meets.
15	S	
16	S	
17	M	
18	Tu	Council meets.
19	W	
20	Th	Candidates' notices, with fee for April Special
21	F	Medical Examination, must be in by this
22	S	date.
23	S	
24	M	
25	Tu	
26	W	
27	Th	
28	F	Good Friday. Easter Recess begins.
29	S	
30	S	Easter Day.
31	M	

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APRIL—XXX.

1	TU	Easter Recess ends.
2	W	Special Medical Examinations held during this
3	TH	month if ordered.
4	F	
5	S	
6	S	
7	M	
8	TU	
9	W	
10	TH	
11	F	Special Meeting of Senate to consider results of
12	S	Degree Examinations held about this date.
13	S	
14	M	
15	TU	Council meets.
16	W	
17	TH	
18	F	
19	S	
20	S	
21	M	
22	TU	
23	W	
24	TH	
25	F	
26	S	
27	S	
28	M	
29	TU	
30	W	

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MAY—XXXI.

1	TH	Candidates' notices, accompanied by fees, for M.A., Honours in Arts or Science, Mus. B., Mus. D., LL.D., Senior and Tinline Scholarships, and all Engineering Examinations, must be in by this date, or with two guineas extra by May 8th.
2	F	
3	S	
4	S	
5	M	
6	TU	
7	W	
8	TH	
9	F	
10	S	First Term ends.
11	S	
12	M	
13	TU	
14	W	
15	TH	
16	F	Professorial Board meets.
17	S	
18	S	
19	M	University College opened by His Excellency the Governor (Sir Wm. Jervois, G.C.M.G.), 1883.
20	TU	
21	W	
22	TH	Council meets on 20th.
23	F	
24	S	
25	S	
26	M	
27	TU	
28	W	
29	TH	
30	F	
31	S	

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JUNE—XXX.		
1	S	
2	M	Second Term begins.
3	Tu	
4	W	
5	Th	
6	F	
7	S	
8	S	
9	M	
10	Tu	
11	W	
12	Th	
13	F	Professorial Board meets.
14	S	
15	S	
16	M	
17	Tu	Council meets.
18	W	
19	Th	
20	F	
21	S	
22	S	
23	M	
24	Tu	
25	W	
26	Th	
27	F	
28	S	
29	S	
30	M	

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JULY—XXXI.		
1	TU	
2	W	
3	TH	
4	F	
5	S	
6	S	
7	M	
8	TU	
9	W	
10	TH	
11	F	Professorial Board meets.
12	S	
13	S	
14	M	
15	TU	Council meets.
16	W	
17	TH	
18	F	
19	S	
20	S	
21	M	
22	TU	
23	W	
24	TH	
25	F	
26	S	
27	S	
28	M	
29	TU	
30	W	
31	TH	

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AUGUST—XXXI.

1	F	Undergraduates exempted under Statute "Terms and Lectures" must give notice by the 15th to the College Registrar of their intention to come up for Annual Examination.
2	S	
3	S	
4	M	
5	Tu	
6	W	
7	Th	
8	F	
9	S	Second Term ends.
10	S	
11	M	
12	Tu	
13	W	
14	Th	
15	F	Professorial Board meets.
16	S	
17	S	
18	M	
19	Tu	Council meets.
20	W	
21	Th	
22	F	
23	S	
24	S	
25	M	
26	Tu	
27	W	
28	Th	
29	F	"New Zealand University Act, 1874, passed.
30	S	
31	S	

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SEPTEMBER—XXX.

1	M	Candidates' notices for the November Examinations (except as shown on page 12 of University Calendar, 1901-1902) not received by the University Registrar after this date, except with two guineas extra up to Sept. 8th.
2	Tu	
3	W	
4	Th	
5	F	
6	S	Third Term begins on 1st.
7	S	
8	M	
9	Tu	
10	W	
11	Th	"Auckland University College Act, 1882," passed.
12	F	Professorial Board meets.
13	S	
14	S	
15	M	
16	Tu	Council meets.
17	W	
18	Th	
19	F	
20	S	
21	S	
22	M	
23	Tu	
24	W	
25	Th	
26	F	
27	S	
28	S	
29	M	
30	Tu	

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OCTOBER—XXXI.

1	W	Last day of receiving notices for Annual Examination.
2	TH	
3	F	
4	S	
5	S	
6	M	
7	TU	
8	W	
9	TH	
10	F	
11	S	
12	S	
13	M	
14	TU	
15	W	
16	TH	
17	F	Professorial Board meets.
18	S	
19	S	
20	M	
21	TU	Council meets.
22	W	Candidates for the December Examinations must send in notices and fees to the University Registrar by a date to be found in the University of New Zealand Calendar for 1902-1903.
23	TH	
24	F	
25	S	
26	S	
27	M	
28	TU	
29	W	
30	TH	
31	F	

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NOVEMBER—XXX.

1	S	Examinations for Degrees in Arts, etc., held this month.
2	S	
3	M	
4	Tu	
5	W	
6	Th	
7	F	
8	S	
9	S	King's Birthday
10	M	Third Term ends.
11	Tu	
12	W	
13	Th	
14	F	Professorial Board meets.
15	S	
16	S	
17	M	
18	Tu	Council meets.
19	W	
20	Th	
21	F	
22	S	
23	S	
24	M	
25	Tu	
26	W	
27	Th	
28	F	
29	S	
30	S	

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DECEMBER—XXXI.

1	M	
2	Tu	
3	W	
4	Th	
5	F	
6	S	
7	S	
8	M	
9	Tu	
10	W	
11	Th	
12	F	Professorial Board meets.
13	S	
14	S	
15	M	
16	Tu	Council meets.
17	W	
18	Th	
19	F	
20	S	
21	S	
22	M	
23	Tu	
24	W	
25	Th	Christmas.
26	F	
27	S	
28	S	
29	M	
30	Tu	
31	W	

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Auckland University College.

HISTORICAL SKETCH.

THE introduction of University Education into New Zealand was effected by the Superintendent and Provincial Council of Otago, who, in 1869, passed an Ordinance under which the University of Otago was established. Following closely on the founding of this institution was the establishment of the University of New Zealand under an Act of the General Assembly, "The New Zealand University Act, 1870." This University subsequently received a Royal Charter, whereby the Degrees which it confers are declared entitled to "rank, precedence, and consideration" throughout the British Empire, "as fully as if the said Degrees had been conferred by any University of the United Kingdom." It was apparently contemplated by Parliament (*vide* section 19 of the Act last quoted) that the New Zealand University and the Otago University should be amalgamated; but the negotiations for this purpose having failed, the two institutions remained for some time distinct bodies. In the year 1874, however, the University of Otago surrendered or put in abeyance its power of conferring Degrees, and became affiliated to the University of New Zealand; and at the same time it was stipulated that the University of New Zealand should not directly exercise functions of teaching.

In the year 1873 the Superintendent and Provincial Council of Canterbury passed an Ordinance for founding "The Canterbury College;" and the College was accordingly established with the same standard of University education as that of the University of Otago, but without the power of conferring Degrees.

In December, 1878, a Royal Commission on University and Secondary Education was appointed by the Governor of New Zealand. This Commission, of which Sir George Maurice O'Rorke was Chairman, met in January, 1879, and on the 9th

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of July following reported that two Colleges, with an income of £4,000 each, ought to be established in Auckland and Wellington, and that suitable buildings, at a cost of £12,500 each, should be erected in those cities. In the following year the Royal Commission repeated these recommendations.

"The Auckland University College Act, 1882," which became law on the 13th of September in that year, definitely established the Auckland University College, and endowed it with a statutory grant of £4,000 per annum. By "The Auckland University College Reserves Act, 1885," three blocks of land, containing about 10,000 acres each, and a block containing about 354 acres, which had been devoted to the purpose of promoting higher education in the Province of Auckland, became vested in the Council of University College.

The Auckland University College was affiliated to the University of New Zealand, by the Senate of the University, on the 6th of March, 1883; and on the 21st of May in the same year the College was opened by His Excellency the Governor of New Zealand, Sir William F. Drummond Jervois, G.C.M.G.

The recommendation made by the Royal Commission, that College buildings should be erected, has not been carried into effect. The building in Eden Street, which was formerly the District Courthouse, was in 1883 placed at the disposal of the College Council by the Government, for the purposes of College work. The large room of this building is formed into a lecture-hall, and additions have been made for the formation of laboratories. In "The Special Powers and Contracts Act, 1885," the Governor was empowered, when the offices then occupied by the Survey and Crown Lands Departments in Auckland should be vacated, to transfer those as well as the District Courthouse mentioned above, to the College Council. The block of land on which these buildings stand extends from Parliament Street to Beach Road, containing an area of 1 acre 11 perches. This transfer was carried into effect in the year 1890; and by an expenditure of about £1,200 of the University College funds the premises were rendered fairly suitable to the purposes of the College.

The Governing Body of the College is constituted and incorporated by the Act of 1882, and is styled "The Auckland University College Council." It consists of eleven members, two of whom are *ex officio*, viz., the Mayor of the City of

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Auckland and the Chairman of the Auckland Board of Education. The other nine form three groups, consisting of three members each, viz., three elected by the members of the General Assembly resident in the Provincial District of Auckland, three appointed by the Governor in Council, and three elected by the Graduates of the New Zealand University on the books of the College. These last three members were appointed by the Governor in Council until the College numbered thirty Graduates. Elections were made by the Graduates for the first time in 1890. One member of each group retires annually. The Minister of Education is the Visitor of the College. The Chairman of the Council is elected by the Council. The Council meets statedly at least once a month, five members forming a quorum. "The Professorial Board," which is constituted by the Act, possesses, "subject to the approval of the Council," the power of fixing the course of study and the days and hours of lectures and examinations, and prescribing the subjects of examinations for scholarships, exhibitions, and prizes; and it has, "subject to a right of appeal to the Council," a general control over the discipline of the students, the management of the library, and the direction of the College servants. It elects a Chairman annually. Each Professor or Lecturer is entitled to receive, in addition to his salary, the fees that are paid by students for attendance at his lectures.

Mr. Thomas Bannatyne Gillies, a Judge of the Supreme Court of New Zealand, presented to the College Council, in the year 1884, the sum of £3,000 (three thousand pounds), for the purpose of founding two Science Scholarships, to be called respectively the "Sinclair" and the "Gillies" Scholarship. They were so named in memory of Dr. Andrew Sinclair, uncle of the late Mrs. Gillies, and in memory of Mrs. Gillies herself. This munificent gift was forthwith utilised in the manner prescribed; but these Scholarships had to be put in abeyance for some years in consequence of the falling off in the value of the land on which the money was invested. They have now, however, been revived, and are at present of the value of £70 per annum each.

The Auckland Amateur Opera Club, in the year 1890, presented to the College Council the sum of two hundred guineas to be expended in that and the two following years for the encouragement of the study of Music. Money Exhibitions, accordingly, were granted, to be competed for by students

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attending, or about to attend, the classes of the School of Music in the College. The results were considered to be very satisfactory, but the Exhibitions ceased to exist when the two hundred guineas were expended. The Countess of Onslow, in 1891, gave two silver medals to be awarded to the most deserving of those students in the Music classes whom the Regulations excluded from competing for Exhibitions. Similar gifts were made for the years 1892, 1893, 1894.

Lady Glasgow provided similar medals for 1895, 1896, and 1897, and Lady Ranfurly has agreed to continue the medals to take the place of those provided by Lady Glasgow.

A valuable addition was made to the College Library on the 31st March, 1894, by the late Professor Charles Alexander Maclean Pond, who had held the chair of Classics and English from July, 1891, to October, 1893. The whole of his library, consisting of upwards of a thousand volumes, of standard English and Classical works, he bequeathed to the University College, and the books are now placed in a special press in the Library, each book being labelled as the bequest of the lamented Professor.

The Council is under great obligation to the late Mr. James McCosh Clark, who was Mayor of the City of Auckland during the years 1881, 1882, and 1883, and who, on the termination of his Mayoralty, was presented with a six-inch telescope by the citizens of Auckland as an appreciation of his public services and as a mark of the citizens' respect and esteem for Mrs. Clark, during her husband's Mayoralty. The use of this telescope has been placed at the service of the College, and it is now mounted at the top of the brick tower attached to the College building. The thanks of the College were tendered to Mr. and Mrs. Clark, for granting the use of the telescope to the College, by resolution unanimously passed by the Council on the 20th December, 1894, and similar thanks were given on the 16th November, 1896, to Mr. and Mrs. Clark for granting the College the use of a celestial globe.

By the will of the late Mr. J. L. Sinclair, who died at Otahuhu, on 12th November, 1895, the testator bequeathed to the Auckland University College Council all such of his books as the Professorial Board of the College might consider suitable for the College Library. 580 vols. were selected and added to the Library, each book bearing a label showing that it was bequeathed to the Library by the late James Lenask Sinclair.

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In the year 1897, it was found necessary to provide a new Physical Laboratory at a cost of £328 4s. 6d.

On the 20th June, 1898, the Council requested the Chairman (Sir Maurice O'Rorke) to draw the attention of the Government to the insufficiency of the accommodation in the College buildings for the classes attending lectures, and to the inability of the Council to provide the requisite accommodation out of its current revenue. This application was attended with success, so that on the 28th November, 1898, the Chairman was able to report that the Government had met the application in a liberal spirit, and that £1,000 had been cheerfully voted by Parliament. The Council tendered a hearty vote of thanks to Sir Maurice O'Rorke for his successful efforts to obtain this grant. The Government further showed their liberality by permitting Mr. C. R. Vickerman, of the Public Works Department, to prepare the necessary plans and to supervise the erection of the buildings. Tenders were called for, and that of Mr. John E. Guthrie, amounting to £1,116 11s., was accepted on the 29th of March, 1899. Other additions were afterwards found to be desirable, the cost of which was defrayed out of the funds of the College, and the total amount paid to the contractor was £1,213 6s. 6d. It was agreed to spend £120 on securing proper precautions against fire, and after providing suitable furniture the total cost amounted to £1,558 5s. 1d. The new rooms are admirably adapted for the purposes for which they have been provided, and will be sufficient for the requirements of the College for many years to come.

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College Regulations.

TERMS, FEES, ATTENDANCE AT LECTURES.

1. There shall be in each year three Terms. The First Term shall begin on the first Monday in March, and end on the tenth of May. The Second Term shall begin on the first Monday in June, and end on the tenth of August. The Third Term shall begin on the first Monday in September, and end on the tenth of November.

2. The fees for lectures shall be ten shillings per Term for a course occupying one hour per week, one pound per Term for a course occupying two hours per week, and so on proportionally. For laboratory instruction the fees shall be ten shillings per term for one half-day per week, one pound per term for two half-days per week, and so on proportionally. Provided that attendance at a course of lectures during the First and Second Terms shall entitle to exemption from payment of fee for attendance at a course of lectures on the same subject and not occupying a greater amount of time per week during the Third Term; and similarly as to attendance in laboratory.

3. On payment of the fee at the office of the College a ticket of admission shall be issued, which must be countersigned by the Professor, or Lecturer. All fees must be paid within three weeks from the commencement of the Term. The first lecture of every course will be free.

4. Admission to lectures or laboratories shall not be restricted to undergraduates, that is to say, matriculated students, but shall be open to all persons who have complied with the preceding Regulation No. 3.

5. Each Professor and Lecturer shall keep a roll showing the number and names of the students present at each lecture. These rolls shall be laid on the table at each monthly meeting of the Council, and shall be preserved for reference.

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ANNUAL EXAMINATION.

6. The Annual Examination shall be held in the last part of the Third Term, at such time approved by the Council, as will allow the publication of the complete results by the last day of the Term.

7. Every student who shall have attended the full course of lectures during at least two Terms of the year, shall be entitled to be examined at the Annual Examination in that subject, without payment of any examination fee.

8. A fee of one guinea shall be paid for the Annual Examination in each subject which the candidate shall select, and on which he shall not have attended lectures. Students who are examined out of Auckland are required to pay an extra fee of half-a-guinea for each subject on which they are examined, to be paid to the Registrar at least ten days before the commencement of the Examination; but when at any place of examination only one student is examined, the extra fee shall be one guinea for each subject in which such student shall be examined.

9. All candidates for the Annual Examination must give in their names and the examination fees due (if any) to the Registrar on or before the first day of October in each year; but names may be received by the Registrar up to the eighth day of October in each year on payment of a fine of half-a-guinea.

10. As soon as practicable after the Annual Examination, there shall be published a list of undergraduates who have kept the Terms of the year, and also lists of those persons who have passed the examinations in the several subjects respectively. In each subject there shall be three classes, the First Class being the highest. In the First and Second Classes the names shall be arranged in order of merit; in the Third Class in alphabetic order

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THE KEEPING OF TERMS.

(N.B.—The following Regulations apply to undergraduates who desire to keep Terms with a view to examination by the University of New Zealand.)

11. Undergraduates shall be held to have kept Terms for the year in any subject who shall have *(a)* attended during the year at least three-fourths of the prescribed lectures, *and (b)* passed the Annual Examination in that subject.

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The following are the subjects in which Terms may be kept:—

1. Latin
2. Greek
3. English
4. French
5. German
6. Hebrew
7. General History and Political Economy
8. Jurisprudence and Constitutional History
9. Pure Mathematics
10. Applied Mathematics
11. Physical Science
12. Chemistry
13. Biology
14. Geology
15. Mental Science
16. Music

12. *(1)* Undergraduates must, to complete their first year, keep Terms in three subjects. For their second year they must offer for examination such subjects as they intend to take for the first section of their Degree, but may be credited with the year by keeping Terms in three such subjects. For their third year they must keep Terms in such subjects as they intend to take to complete their degree.

(2) But undergraduates exempted by University Statute from attendance upon lectures shall be credited with their Terms if they shall have passed the examination for the year in the required subjects.*

13. Every undergraduate intending to present himself for any University Examination for a Degree, other than the Degree of Bachelor of Medicine, or any of the professional branches of the

* For students exempted by University Statute from attendance upon lectures, see University Calendar, Statutes "Terms and Lectures," chap. vi., reg. iii.

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Degree of Bachelor of Science, shall, when he signifies to the Chancellor the subjects in which he elects to be examined, forward a duplicate of such notice to the Registrar of Auckland University College.

14. Undergraduates who intend to present themselves for examination in Physical Science, or in Biology, Geology, or Chemistry, must produce evidence that they have in the same, or a previous year, gone through, to the satisfaction of the Professor, a course of practical work in the subject.

REGULATIONS RESPECTING THE COLLEGE LIBRARY

15. The Assistant Librarian will attend daily for the purpose of students borrowing and returning books during Term time from 10 a.m. till 12 noon, and 4 p.m. till 6 p.m.; during vacation from 10 a.m. to 12 noon. Books are to be taken out only at the times specified. During Term the Library will be open to students for the purpose of reading till lectures close

16. A Catalogue of the books shall be kept on the table.

17. No person shall make any mark in or upon any book, or fold down a leaf, or otherwise deface any book belonging to the Library. No one shall lay the paper on which he is writing on the book he is using.

18. All members of the Auckland University College shall be permitted to use the Library, but the privilege of taking out books shall be reserved for members of the Council, Professors, Lecturers, Graduates and Students attending Lectures.

19. All books, except such as may be specially reserved, may be taken out of the Library; but no person shall have in his possession more than two volumes at a time. Persons who retain a book for more than fourteen days shall be liable to a fine of threepence per day, or portion of a day, for each day for which it is retained beyond that period. But students who have not paid any fines due by them are not permitted to take books out of the Library.

20. Text-books prescribed for the current year shall in no case be removed from the Library.

21. Before removing a volume, the Assistant Librarian shall enter in a book to be kept in the Library, the name of the borrower, the title of the volume, and the date of removal. The

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borrower shall be responsible for its safe return, or, in the event of damage or loss, shall be liable to replace it at his own cost.

22. A notice-book shall be provided in the Library, in which a student desirous of obtaining a book already in circulation may enter his name and the title of the book desired. No person on returning a volume to the Library shall borrow it for a second period, unless he shall have satisfied himself by reference to the notice-book that the volume is not otherwise required.

PREMIUMS.

23. There shall be awarded, after the Annual Examination, ten Premiums of the value of three guineas each, consisting of books or scientific instruments, in the following subjects:—

Latin
English
Pure Mathematics
Applied Mathematics
Chemistry
Physics
Biology
Geology
French
Jurisprudence and Constitutional History

24. In each subject the Premium shall be open for competition to first and second years' students in that subject; and it shall be awarded to the student recommended for the prize by the examiner, who in making the recommendation shall take into consideration the attendance, conduct, and progress of the student, as well as the number of marks gained at the examination.

25. Each prize-winner shall be allowed to select, subject to the approval of the Examiner, the books or scientific instruments to be received as a Premium; and if the cost exceed three guineas, the excess shall be defrayed by the student.

26. Each prize volume shall be well bound and stamped with the College Arms, and shall be distinctly labelled according to the subject in which it shall be awarded. Each scientific instrument awarded shall bear a suitable inscription.

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27. If a student wins any of the above prizes in his or her First Year, such student shall not be allowed to win that prize or prizes in the Second Year, but may compete for a prize of a different denomination.

PRIZES IN EARLY ENGLISH.

28. The Early English Text Society have offered for competition each year certain volumes of their publications. These books will be awarded on the results of an examination to be held early in the Third Term by the Professor of English Language and Literature. Students are required to notify to the Registrar their intention of competing for these prizes before the end of the Second Term.*

SCHOOL OF MUSIC.

A Certificate has been instituted by the Council entitling the holder to rank and be called an "Associate" in the School of Music of the Auckland University College.

Regulations.

1. Candidates for this Certificate must attend a course of Lectures on Acoustics, and pass an examination in the same.

2. They must also give two years' attendance on lectures in the School of Music, embracing the Theory of Music, Harmony, Composition, Form, Counterpoint, Fugue, History of Music, and Instrumentation, and must also display the required proficiency in the execution of either vocal or instrumental Music of standard examples of classical and modern composition.

3. Notwithstanding the fulfilment of all other requirements, no person shall be entitled to receive such Certificate or be called an "Associate" until he or she shall have attained the full age of seventeen years.

ASSOCIATE OF THE SCHOOL OF MUSIC.

Practice of Music.

Candidates shall be required to satisfy the Examiners in one or more of the following subjects:—

I. Pianoforte Playing.

II. Solo Singing.

III Playing on Any Orchestral Instrument.

* For course see Syllabus.

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I.—Pianoforte Playing.

Candidates will be required

1. To play either—
   (a) Prelude and Fugue in C sharp major (No. 3 of the 48, Bk. I.)—Bach;
   (b) And Sonata No. 7 (Op. 10, No. 3)—Beethoven.
   Or,
   (a) Staccato Study in C—Rubenstein;
   (b) and Rondeau alla Polonaise—Bennett.
2. To read at sight.
3. To play all major and minor scales and arpeggios in similar and contrary motion.
4. To have a critical knowledge of the pieces performed.

II.—Solo Singing.

Soprano candidates—

1. Will be required to sing—
   (a) Recit. and Air, "O let eternal honours"; and "From mighty kings" (Judas)—Handel;
   (b) "With verdure clad" (Creation)—Haydn.

Mezzo-soprano—

(a) "She wandered down the mountain side" (in C)—Clay;
(b) "Recit. and Air, "Blest be the Lord"; and "What though I trace" (Solomon)—Handel.

Contralto—

(a) "O thou that tellest"—Handel;
(b) "O that we two were maying" (in C)—Gounod.

Tenor—

(a) "The enemy said"—Handel;
(b) "I'll sing three songs of Araby"—Clay.

Bass—

(a) "Why do the nations"—Handel;
(b) "'Tis jolly to hunt"—Sterndale Bennett.

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2. To sing from sight.

3. To sing any major or minor scale.

4. To have a good knowledge of the rudiments of music.

(Candidates must bring their own accompanists.)

III.—Playing upon Orchestral Instruments.

Candidates may select two solos of different styles from the works of classical composers.

The other tests will be the same as 2 and 3 of Subject I. and have a good knowledge of the rudiments of music.

(Candidates must bring their own accompanists.)

REGULATIONS RESPECTING THE RANFURLY MEDALS.

1. A Ranfurly Silver Medal is offered for competition to the students of Music of the Advanced Division at the Annual Examination in Music at the end of the session of 1902.

2. A Ranfurly Silver Medal is offered for competition to the students of Music of the Junior Division at the Annual Examination in Music at the end of the session of 1902.

3. Students who have won either an Advanced or Junior Medal in Music shall not be allowed to compete again for a Medal of the same denomination; but the winner of a Junior Medal may compete for an Advanced Medal. Students who have obtained a certificate of proficiency in Music in one of the College Classes will not be allowed to compete for a Ranfurly Medal in that class or in a lower class.

4. The Examiner, in making his recommendation to the Council, shall take into consideration the attendance, conduct, and progress of the student, as well as the number of marks gained at the Examination.

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REGULATIONS FOR THE SIR GEORGE GREY SCHOLARSHIP, 1902.

1. That the Council of the Auckland University College undertakes to award the Grey Scholarship for the current year (1902) upon the conditions prescribed in the letter of the Secretary of Education dated 11th May, 1900.

2. That the Scholarship be of the value of £50.

3. That the Scholarship be kept distinct from all other Scholarships by having a Special Examination by the Professors concerned in all the subjects taken up by the Candidates.

4. That the subjects of Examination shall be chosen from the following:—

1. Heat, Sound, and Light.
2. Electricity & Magnetism.
3. Astronomy.
4. Geology.
5. Botany.
6. Zoology.
7. Pure Mathematics.
8. Mechanics and Hydrostatics.
9. Chemistry.

Of these a candidate may choose any three, but must take up one at least of subjects 1, 2, 3, 4.

5. That the Scholarship be open to all Students of this College who have not completed their third academical year.

6. That the Scholarship be awarded upon an examination to be held at the end of the academic year 1902.

7. That the winner of the Scholarship must keep terms in this College during the Session of 1903 and pass the Annual Examination.

8. That the Scholarship be not tenable with any other scholarship or exhibition.

9. That the holder of the Scholarship shall be entitled to payment of one-third of the Scholarship at the end of the first and second terms, and at the end of the third term and the passing of the Annual Examination, on production of a certificate from the Professors under whom he or she shall have studied of

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diligent attendance, good conduct, and satisfactory progress in studies. Failing such certificate or an adverse report from the Professors, the Council may cancel the Scholarship, the money forfeited to be reserved for future Grey Scholarships.

10. That Candidates give notice to the Registrar on or before 1st October next of the subjects they propose to take up.

REGULATIONS RESPECTING SINCLAIR SCHOLARSHIP.

1. The Sinclair Scholarship to be competed for in the year 1902 is of the annual value of £70, and is tenable for three years. It is founded for the encouragement of the study of Biological Science.

2. This Scholarship is open to all persons, male or female, born in the Colony of New Zealand, who at the time of examination shall be between the ages of sixteen and twenty years, and who have not kept Terms or attended Lectures, or held a Scholarship in any University or College, and who shall satisfy the Council of the College that neither they nor their parents or guardians can obtain for them a University education without pecuniary aid. The holder of this Scholarship will not be allowed to hold concurrently a Junior University Scholarship.

3. Candidates, when giving notice of intention to compete, should forward (1) certificate of birth-place and age, and (2) a declaration to the following effect:—

> I, A——— B———, do solemnly and sincerely declare, that neither I nor my parents or guardians can afford the expense of a University education for me without pecuniary assistance, and that I desire to obtain such an education.
>
> (Signed) A——— B———
>
> Declared before me this day of 190
>
> (To be signed by a J.P. or Clergyman.)
>
> This certificate must be endorsed by a Clergyman or Stipendiary Magistrate of the district in which the parents or guardians reside.

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4. Candidates for the Sinclair Scholarship will be examined in Mathematics and in any two of the following subjects (*a*) Botany, (*b*) Animal Physiology, (*c*) Physical Geography, and will be required to write an English Essay on a subject selected by the Examiners.

The standard of the Examination will be the same as that for the Junior Scholarships of the University of New Zealand.

Special weight will be given to attainments and capacity in Animal Physiology and Botany.

5. The Examiners shall be entitled to certify to the Council that no sufficiently qualified candidate has appeared, whereupon the Council may decline to award the Scholarship.

6. The successful candidate will be required to keep Terms at the Auckland University College, and to carry on the studies for the encouragement of which the Scholarship was founded.

7. The holder of the Scholarship shall be entitled to payment of a proportionate amount of his Scholarship at the end of each collegiate Term, on production from the Professors under whom he has studied of a certificate of diligent attendance, good conduct, and satisfactory progress in studies. Failing such certificate, or an adverse report from the Professors, the Council may cancel the Scholarship.

8. The Examination will be held at Auckland, Wellington, Christchurch, and Dunedin, about the end of October, and the names of candidates must be given in to the Registrar on or before the 1st day of that month.

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SYLLABUS OF LECTURES.

LATIN (Professor H. Arnold Talbot-Tubbs).

The following courses will be delivered during the session:—

Translation.— Lectures on the prescribed books:— Cicero, *Verrines IV.*,; Horace, *Odes I.* and *II.* The courses will be given in this order.

Hours of Lecture—Monday and Thursday, 6—7 p.m.

Composition.—There will be two classes, Junior and Senior. The Junior Course will deal with the Syntax of the sentence, and will lead up to continuous prose through the rendering of English Idiom. It is intended for those who have not previously received a sufficient grounding in Syntax and Idiom. In the Senior Course, continuous prose will be so treated as to illustrate the several Latin styles, and the standard of difficulty will be that of the B.A. pass examination, but the lectures of the first term will be of a less advanced kind.

Hours of Lectures—Junior Course, Monday, 7—8 p.m.; Senior, Thursday, 7—8 p.m.

Latin Grammar (Historical) and Philology.—These courses may be given as required, as part of the Honours course. They are open to all students who may wish to attend.

Roman Constitutional History, etc.—Requisite for Scholarship and M.A. candidates, but open to all who may wish to attend.

Hour of Lecture.—Friday, 7—8 p.m.

"*Honours*" and M.A. Lectures, and the hours of their delivery, are subject to special arrangement. Intending Students are requested to call at an early date.

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GREEK (Professor H. Arnold Talbot-Tubbs).

The following courses will be delivered:—

Translation.—Lectures on the prescribed books: Demosthenes, *Olynthiacs* and *Philippic I.* (ed. Sandys: *Macmillans*); Sophocles, *Ajax* (ed. Jebb).

Hours of Lecture—Tuesday and Thursday, 11 a.m.—12 noon.

Composition.—Lectures will be of a tutorial character. Sidgwick's "Greek Prose Composition" will be used as a Text-book.

Hour of Lecture—Tuesday, 10—11 a.m.

"*Honours*" Lectures in Greek are subject to special arrangement.

ENGLISH LANGUAGE AND LITERATURE.

(Professor Egerton.)

English Literature.

The following courses of lectures will be delivered in the Session of 1902:—

I.—The History of English Literature from 1625 to 1688. The subject will be treated in the following order:—

(*a*) General Introduction to the Period. Literary Influences of the Age.

(*b*) The Poets. Lyric and Epic. Satire and Didactic Verse.

Lectures will be delivered on the following Poets:—Herrick, Suckling, Lovelace, Cowley, Denham, Milton, Marvell, Herbert, Crashaw, Samuel Butler, Dryden.

(*c*) Writers for the Stage.

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Lectures will be given on Massinger, Ford, Shirley, Dryden, Otway, Wycherley, and Southern.

(*d*) Prose writers:—Milton, Hobbes, Harrington, Fuller, Jeremy Taylor, Bunyan, Sir Thomas Browne, Izaak Walton, Pepys, and Evelyn.

Text Books recommended: Morley's *First Sketch of English Literature*, or the Student's *Manual of English Literature.*

Further information as to texts, etc., will be given in lectures.

The Hours of Lecture in this branch are: Wednesday 3—4 p.m. and 7—8 p.m. The Evening Lecture is a repetition of that delivered in the afternoon.

II.— Courses of lectures will be delivered on the following works, which will be taken in the order named:

Shakspere: *Hamlet* (Clarendon Press); *Romeo and Juliet* (Rolfe).

Burke: *Reflections on the French Revolution* (Clarendon Press).

Macaulay: *Essay on Walpole* (Blackie); *Essay on Bacon* (Longman's).

From time to time, students who desire to keep terms will be required to write essays upon subjects arising out of the above works, and instruction in English Composition will be given in connection therewith.

Hours of Lectures—Thursday, 12 noon—1 p.m.; Saturday, 9—10 a.m. The latter lecture is a repetition of the former.

ENGLISH LANGUAGE.

III.—The Origin, History, and Structure of the English Language.

Students should procure Sweet's Primers of *Anglo-Saxon* and of *First* and *Second Middle English*, which will be used

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in conjunction with specimen papers supplied in the lecture room for illustration, reference, and comment.

Morris' *Historical Outlines of English Accidence* (Bradley and Kellner's edition) is recommended as a text-book. Those desirous of a more elementary text-book will find in Lowe's *English Language* (University Tutorial Series) a useful introductory work.

Hours of Lectures—First Year, Tuesday, 6—7 p.m.; Second Year, Tuesday 7—8 p.m.

Honours Course.

The course for Honours and M.A. usually requires at least two years' reading. Students who intend to read for Honours are recommended to communicate to the Professor their intention of so doing as early as possible.

Hours of Lectures (subject to alteration by arrangement)—Monday, 12—1 p.m.; Wednesday, 11 a.m.—12; Thursday, 4—5 p.m.

The Early English Text Society's Prize.

The Early English Text Society has offered as a prize to students attending lectures at Auckland University College three volumes of its publications. The books are valuable reprints of Early English Texts.

The examination papers will be set by the Professor of English Language and Literature on the following course:—Elements of Anglo-Saxon Grammar, Sweet's *Anglo-Saxon Reader*, Morris and Skeat's *Specimens of Early English* (Part II).

PURE MATHEMATICS (Professor Segar).

Elementary.

Ordinary Course.—There will be given three lectures a week on the Pure Mathematics prescribed for the degrees B.A. and B.Sc. by the University of New Zealand. Geometry, however, will not be dealt with in this course beyond what is necessary to deal with the Trigonometry.

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SYLLABUS OF LECTURES.

Hours of Lectures.—Wednesday, 5—6 p.m.; Friday, 6—7 p.m.; Saturday, 10—11 a.m.

EXTRA COURSE.—An extra course of one hour a week will be given on Geometry. These lectures will supplement Euclid, and afford ample practice in applying the subject.

Hour of Lecture.—Saturday, 11—12 a.m.

SENIOR COURSE.—A senior course will be provided, by means of Tutorial Classes, when required.

TUTORIAL CLASSES.—Tutorial Classes will be arranged for those for whom help other than or additional to that given in the regular lectures may be necessary or advisable.

ANNUAL EXAMINATION.—In the Annual Examination for the keeping of terms, two papers will be set, one on Geometry and Trigonometry, and the other on Algebra. *Candidates for a Second or Third Year's Terms will be expected to reach a higher standard than candidates for a First Year's Terms.* The papers will include some extra questions, answers to which will not be expected for a Pass, but will be taken into account in assigning the Classes and Order of Merit.

ADVANCED.

Lectures on the more advanced parts of Mathematics will be arranged according to requirements.

Students reading Mathematics for the degree of M.A. or for Honours, should generally take:—

First Year.—The Straight Line and Circle, treated Geometrically and Analytically; the Plane, treated Geometrically; Algebra; Trigonometry.

Second and Third Years.—The Conic Sections, treated Geometrically and Analytically; Differential and Integral Calculus, to Senior Scholarship Standard; the earlier parts of Solid Geometry, treated Analytically.

Fourth Year.—Differential and Integral Calculus; Solid Geometry, treated Analytically; Differential Equations.

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APPLIED MATHEMATICS (PROFESSOR SEGAR).

ELEMENTARY.

ORDINARY COURSE.—There will be delivered two lectures a week on the elements of Applied Mathematics, as follows:—

First Term.—MECHANICS OF A PARTICLE.

Motion with uniform velocity and with uniform acceleration; Force and Motion; Momentum; Impact; Projectiles; Forces acting on a particle.

Second Term.—STATICS OF RIGID BODIES.

Forces acting on a solid body; Centre of Gravity; Friction; Elementary machines; Weighing machines.

Third Term.—HYDROSTATICS.

Specific Gravity; Pressure of liquids and gases; Floating bodies; the Hydrometer, Barometer, Diving Bell, Pump, Turbine, etc.

Hours of Lectures:—Wednesday and Friday, 8—9 p.m. (but altered, when possible, to more convenient hours).

SENIOR COURSE.—A Senior Course will be provided, by means of Tutorial Classes, when required.

TUTORIAL CLASSES.—Tutorial Classes will be arranged for those for whom help other than or additional to that given in the regular lectures may be necessary or advisable.

ANNUAL EXAMINATION.—In the Annual Examination for the keeping of terms, one paper will be set. *Candidates for a Second or Third Year's Terms will be expected to reach a higher standard than candidates for a First Year's Terms.* The papers will include some extra questions, answers to which will not be expected for a Pass, but will be taken into account in assigning the Classes and Order of Merit.

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ADVANCED.

Lectures on the more advanced parts of Applied Mathematics and Mathematical Physics will be arranged according to requirements.

Students reading Mathematical Physics for the degree of M.A. or for Honours, should generally take:—

First Year.—Statics, Dynamics, and Hydrostatics, to the B.A. Standard.

Second and Third Years.—Statics, Dynamics, and Hydrostatics, more completely treated by elementary methods, and treated also analytically.

Fourth Year.—Geometrical Optics; Spherical Astronomy.

BIOLOGY (PROFESSOR THOMAS).

1. GENERAL BIOLOGY.

Students who take either Botany or Zoology for the B.A. or B.Sc. degree of the New Zealand University, are required to show a knowledge of the elements of General Biology, that is, of the general phenomena of life. The present course of lectures is intended to cover the ground of the paper in General Biology, and will include the following subjects:—

Structure, physiology, and life-history of a small number of typical organisms, so selected as to illustrate the general principles of Biology—Theory of Evolution—Geographical Distribution of living beings—The Geological Record.

Hour of Lecture—Wednesday, 6 p.m.

Text-books—Parker, *Elementary Biology;* Marshall, *The Frog.*

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SYLLABUS OF LECTURES.

2. Botany.

Students who take Botany for the B.A. degree should attend the three courses—*(a)* General Biology, *(b)* Junior Botany, *(c)* Senior Botany. The three courses may be taken in one year, but any student who can devote two years to the subject should defer attendance at the Senior Botany until the second year.

Junior Course.

The form and structure of flowering plants—Fertilisation of flowers—Dispersion of seeds—The more important orders of native and introduced flowering plants.

Hour of Lecture—Tuesday, 7 p.m.

Senior Course.

The principal characters of the classes of plants—The structure, physiology, and life-history of the prescribed types of plants for the Bachelor of Arts degree.

Hour of Lecture—Monday, 7 p.m.

Text-books—Either Strasburger's *Text-book of Botany*, or Vines' *Elementary Text-book of Botany*. Students taking the Senior Course will require also Scott, *Structural Botany* (Part I., Flowering Plants); Bower, *Practical Botany for Beginners*.

Honours Course.

Special arrangements will be made for students reading Botany for Honours. A course of lectures of an advanced character will be given on Fridays at 3 p.m.

Botanical Excursions.

Arrangements will be made for Botanical Excursions during the year.

3. Zoology.

The principal characters af the chief classes of animals—The structure and life-history of examples of the most important groups of animals—The elements of comparative embryology.

Hour of Lecture—Wednesday, 12 noon.

Text-books—J. A. Thomson, *Outlines of Zoology;* Marshall and Hurst, *Practical Zoology*.

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SYLLABUS OF LECTURES.

BIOLOGICAL LABORATORY.

The Laboratory will be open during the following hours:—Monday, 2 p.m. to 5 p.m.; Wednesday and Friday, 6 p.m. to 9 p.m.; Saturday, 10 a.m. to 1 p.m.

Classes will be formed for the practical work in Botany or Zoology required for the Bachelor of Arts or Bachelor of Science degree, or for the Medical Intermediate Examination.

Facilities will be offered to persons not preparing for examinations, but who desire to learn the use of the microscope and methods of studying plants and animals.

NOTE.—Special aid will be given to those who desire to learn the use of the microscope and the applications of biology in the arts and manufactures.

GEOLOGY (PROFESSOR THOMAS).

The ordinary course of instruction for students who take Geology for the B.A. or B.Sc. degree, is completed in one year, and includes two lectures weekly and attendance at the Laboratory twice a week. Those, however, who desire to do so, may spread the practical work over two years, attending once a week.

LECTURES.

Crust of the earth—Rocks and minerals—The geological action of the air, water, ice, and living organisms—Volcanoes and volcanic action—Earthquakes—Metamorphism—Secular movements of the crust.

Architecture of the earth's crust.

Palæontology—Fossils and their uses—General structure of the classes of plants and animals found in the fossil state—Generalisations of Palæontology and their bearing on the theory of Evolution.

Chronological classification of rocks—Geological eras and periods—Geology of New Zealand—The characteristic features of the Geological periods.

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SYLLABUS OF LECTURES.

Hour of Lectures—Tuesday and Friday, 5 p.m.

Text-books—Geikie's *Class-book of Geology*, or Geikie's *Text-book of Geology;* Wood's *Elementary Palæontology.*

GEOLOGICAL LABORATORY.

The Laboratory will be open during the following hours:—Monday, 2 p.m. to 5 p.m.; Wednesday and Friday, 6 p.m. to 9 p.m.; Saturday, 10 a.m. to 1 p.m.

Practical instruction will be given in the following subjects:—The properties and identification of minerals—Rock-forming minerals—Characters of rocks—Structure of typical genera of fossil plants and animals—Characteristic fossils of the geological periods.

Excursions will be arranged for the study of Field Geology.

MINING.

Special facilities will be afforded to those who wish to study the ores of the metals, identification of minerals, rocks, etc., for the purpose of Mining.

CHEMISTRY (Professor Brown).

General Course.

The characteristics of chemical action—The laws of chemical combination—The Atomic theory—Atomic weights and chemical symbols—Empirical, rational and constitutional formulæ—The physical and chemical properties and the modes of preparation of the more important elements and of their chief compounds including simple carbon compounds.

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Hour of Lectures—Monday and Thursday, 5 p.m.

Text-book—"Inorganic Chemistry," by G. S. Newth.

ADVANCED COURSE.

A course of lectures on Chemistry of a more advanced character will also be given, and will deal more especially with theoretical chemistry. The subjects treated will include the determination of molecular and of atomic weights, the classification of the elements and the periodic law, and the relations between heat, light, and electricity, and chemical action.

Hour of Lecture—Monday, 4 p.m.

CHEMICAL LABORATORY.

The Laboratory will be open on Tuesdays and Fridays from 2 p.m. to 5 p.m., and from 6 p.m. to 9 p.m., and on Saturdays from 10 a.m. to 1 p.m.

Instruction will be given in the Laboratory in all branches of Practical Chemistry, including qualitative and quantitative inorganic and organic analysis, and the preparation of chemical products.

Special facilities will be afforded to those who desire to study Practical Chemistry, as applied to different processes employed in the arts and manufactures.

All apparatus, gas, fuel, and ordinary reagents will be provided by the College; but a deposit of 10s. will be required from each student, to cover the cost of loss and breakage.

EXPERIMENTAL PHYSICS (PROFESSOR BROWN).

SESSION 1902.

HEAT, LIGHT, AND SOUND.

FIRST TERM—HEAT.

Introductory—Methods of measurement employed in Physics—Thermometers and pyrometers—Expansion of solids, liquids,

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and gases—Absolute temperature—Application of the laws of expansion.

Phenomena of fusion, crystallisation, evaporation and ebullition.

Hygrometry—Modes of measuring the hygrometric condition of the atmosphere.

Conduction, radiation, and absorption of heat.

Calorimetry, specific and latent heats—The elements of thermodynamics.

SECOND AND THIRD TERM—LIGHT AND SOUND.

Nature, production, and propagation of Light—The laws of reflection and refraction at plane and spherical surfaces—Prismatic dispersion and spectra—Interference—Double refraction and plane polarisation—The principal optical instruments and vision.

Sensation and external cause of sound—Mode of its transmission—Velocity of sound—Elements of a musical sound—Loudness and extent of vibration—Pitch and rapidity of vibration—Motion of sounding strings—Motion of sounding air columns—Resonance—Analysis of compound sounds—Interference—Beats—Consonance and dissonance.

Hour of Lectures—Tuesday and Friday, at noon.

Note.—The course of instruction in Physics extends over two years; but the arrangement is such that students may begin the study of Physics in any year.

SESSION OF 1903.

MAGNETISM AND ELECTRICITY.

FIRST TERM.

Introductory—Methods of measurement employed in Physics.

Magnetism—Magnetic attraction and repulsion—Magnetic induction—Measurement of magnetic forces—Terrestrial magnetism,

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SYLLABUS OF LECTURES.

Frictional electricity—Fundamental experiments of attraction and repulsion—Phenomena of induction—Electrical machines—The Leyden Jar—Measurements of potential, capacity, and quantity. Electrometers. Atmospheric electricity.

SECOND AND THIRD TERMS.

Current electricity—Galvanometers—Mutual action of magnets and currents—Electrolysis—Thermal effects of the electric current—Resistance.

Production of electric currents—The Voltaic cell—Thermo-electric currents—Induced currents—Magneto-electric and dynamo electric machines.

Application of electricity to lighting and signalling.

Hour of Lectures—Tuesday and Friday, at noon.

Text-books — "Electricity, treated Experimentally," by Linnæus Cumming; "Elementary Lessons in Electricity and Magnetism," by Sylvanus P. Thompson.

PHYSICAL LABORATORY.

Practical instruction in Physics will be given in the Laboratory, which will be open on Tuesdays and Fridays from 2 p.m. to 5 p.m., and from 6 p.m. to 9 p.m., and on Saturdays from 10 a.m. to 1 p.m.

MUSIC (DR. W. E. THOMAS).

*JUNIOR DIVISION.

Hours of Lectures—Monday, 4—5 p.m. and 6—7 p.m.†

Elements of Music: Notes, rests, clefs, intervals, scales, time abbreviations, and other signs.

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* This Division will cover the knowledge necessary for Trinity College, London, Senior; and the Associated Board of R.A.M. and R.C.M., Senior.

† The evening Lecture is a repetition of that delivered in the afternoon.

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SYLLABUS OF LECTURES.

Harmony[1]: Common chords, chords of the dominant 7th, 9th, 11th, 13th, suspensions, augmented 6th, cadences, passing notes, sequences, transposition, modulation, and harmonising melodies.

Counterpoint[2]: Simple; all species in two parts.

History of Music.[3]

INTERMEDIATE DIVISION.

Hours of Lectures—Thursday, 3—4 p.m. and 7—8 p.m.*

Harmony[1]: Up to four parts.

Counterpoint[2]: Simple, up to three parts.

Double Counterpoint: In the octave, 10th, 12th, and 15th.

Canon and Fugue: In two parts.

Instrumentation: Compass, capabilities, and quality of the various instruments employed in the orchestra.

Form: as employed in classical compositions.

History of Music.[3]

ADVANCED DIVISION.

Hours of Lectures—Friday, 4—5 p m. and 6—7 p.m.*

For Advanced Students: The lectures will comprise the whole of the Theory and History of Music, up to the standard of the Bachelor of Music Degree.

The above-mentioned lectures will be delivered at the University College.

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(1) Stainer's "Harmony" is recommended for Juniors, and Prout's for Intermediate and Advanced.

(2) Bridge's "Counterpoint" for Juniors, Prout's for Intermediate and Advanced.

(3) Davey's "History of Music" is recommended for all Divisions.

All the above can be procured at Sunday School Union, Queen Street, Auckland.

*The evening Lecture is a repetition of that delivered in the afternoon.

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GRADUATES.

The following are the Graduates of the University of New Zealand, whose names are on the College Register:—

DOCTOR OF SCIENCE.

MACLAURIN, James Scott (B.Sc. 1892), 1897 (*1*)

MASTERS OF ARTS.

BUCHANAN, Edith Marv [*née* Adams] (B.A. 1889), 1890
ALLEN, Richard William (B.A. 1898), 1899
CARTER, Frederick John (B.A. 1890), 1891
COWX, Howard Percival (B.A. 1890), 1891
CRUMP, Mabel Lilian (B.A. 1896), 1897
CURRIE, Annie Hamilton (B.A. 1892), 1893
DAVIS, John King (B.A. 1881), 1882
EDGER, Margaret Lilian Florence (B.A. 1881), 1882
FIELD, Edward Thurlow (B.A. 1892, LL.B. 1895), 1893
FOX, Charles Elliott (B.A. 1900), 1901
FRENCH, James Morison (B.A. 1887), 1888
GIFFORD, Arthur (B.A. 1885), 1886
GIFFORD, Sylvia Esther, (B.A. 1890), 1891
GILLIES, Sinclair (B.A. 1888), 1889
GRANT, Catherine Donaldson (B.A. 1892), 1893
GREEN, Thomas Hillier (B.A. 1889), 1890
HAMILTON, Robert James (B.A. 1895), 1896
HARRIS, Thomas Abraham (B.A. 1900), 1901
JACKSON, David Hamilton (B.A. 1891, B.Sc. 1893), 1892
LA TROBE, William Sanderson (B.A. 1893), 1894
LIPPIATT, George (B.A. 1890), 1891

(*1*) Government Analyst.

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GRADUATES.

MAJOR, Charles Thomas (B.A. 1892, B.Sc. 1894), 1893
MAJOR, Henry Dewsbury Alves (B.A. 1895), 1896
MCCULLOUGH, Robert Alexander (B.A. 1895), 1900.
MELLSOP, Clementine Emily Margaret [*née* Harrison] (B.A. 1884), 1885
MORRISON, Annie Christina (B.A. 1892), 1893
MULGAN, Edward Ker (B.A. 1895), 1896 (*2*)
NEWCOMBE, Frederick (B.A. 1894), 1895
NOTT, James Thornton (B.A. 1890), 1891
PARKINSON, Henry Ainslie (B.A. 1900), 1901
PICKEN, Winifred (B.A. 1894), 1895
POGSON, Frank Lubecki (B.A. 1900), 1901
ROCKEL, Robert Hermann (B.A. 1898), 1901
RYBURN, Robert Middleton (B.A. 1888), 1889
SHREWSBURY, Elsie (B.A. 1892), 1893
SHREWSBURY, Hugh (B.A. 1889, LL.B. 1894), 1890
SHROFF, Alfred Homy (B.A. 1397), 1899
SINCLAIR, Mary Muir (B.A. 1889), 1890
STRONG, Edward Herbert (B.A. 1899), 1900
TISDALL, Charles Archibald (B.A. 1894), 1895
TISDALL, William St. Clair Towers (B.A. 1878), 1879
TURNER, Joseph Hurst (B.A. 1889), 1890
WATTS, Percy Harold (B.A. 1898), 1899
WILSON, Joseph Harris (B.A. 1883), 1886

BACHELORS OF ARTS.

AUBIN, Emile Dupont, 1891
BAKER, Harold Napier, 1900
BALL, Eleanor Dorothy (*née* Dudley), 1894
BAMFORD, Harry Dean (LL.B. 1901), 1899
BLENNERHASSETT, Annie, 1900
BOSCAWEN, Teresa Catherine Burgoyne (*née* Gerkens), 1897

(*2*) Inspector of Schools, Board of Education, Auckland.

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GRADUATES.

Boyle, John, 1893
Broad, Charles Harrington, 1893
Carter, Henry James, 1894
Clarke, Edward de Courcy, 1901
Clayton, Charles Ziegler, (LL.B. 1886), 1883
Coleman, Margaret Annabella, 1887
Cronin, Bartholomew, 1884
Dinneen, Alice Maud Dalton, 1901
Drummond, James, 1894
Drummond, Peter, 1896
Durrieu, Louisa, 1889
Ecclesfield, Isabel, 1891
Ellis, Percy Sylvester Gilbert, 1893
Field, Charles William, 1898
Frost, Constance Helen (M.B., Ch. B. 1900), 1893
Galwey, John de Burgh, 1893
Gatenby, William Joshua, 1897
Grant, Jane Donaldson, 1893
Hamilton, Annie Eliza (*née* McPherson), 1899
Hill, Mary Lilian, 1889
Hine, Hubert, 1898
Horton, Henry, 1892
James, Herbert Louis, 1886
Johnston, William Henry, 1898
Kerr, Walter, 1886
Knapp, Jessie, 1891
Laws, Charles Henry, 1898
Lindsay, Peter Alexander (M.B. and C.M., Edinburgh), 1884
Livesey, Cecil Edleston, 1897
Livesey, Florence Ellen, 1899
Lusk, Harold Butler, 1901

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GRADUATES.

MACLAURIN, Richard Cockburn, 1891 (*3*)
McDOWELL, William Chisholm Wilson, 1885 (M.B. and C.M., Edin.)
McINTYRE, Hugh, 1901
MAHON, Harold James del Monte, 1895
MOORE, Joseph Harold (LL.B. 1897), 1893
MURRAY, Annie, 1893
MURRAY, Donald, 1890
NEVE, Frederick, 1892
O'DONOGHUE, D., 1900
PATTERSON, Florence Isabella, 1901
PICKMERE, Marguerita Blomfield, 1901
RATTRAY, Robert Henry (LL.B. 1880), 1878
REES, Annie Lee, 1901
SMITH, Claire Scott, 1898
SMITH, Harry, 1897
STUCKEY, Frederick, 1901
WALKER, William Robert Cooper, 1898
WALKER, Maxwell, 1901
WELLS, Tom Umfrey, 1894 (*4*)
WITHER, George Bigg, 1895
YOUNG, Frederick William, 1897

BACHELORS OF SCIENCE.

BAKER, William Henry, 1899
CHOYCE, Charles Coley, 1897
CRUICKSHANK, Christina Murray (M.A. 1896), 1900
DROMGOOL, James Charles, 1899
HUNTER, Matthew Albert (1900), Honours 1901
JACKSON, David Hamilton (M.A. 1892), 1893

(*3*) Professor of Mathematics, Victoria College, New Zealand.
(*4*) Headmaster of Richmond Road School.

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MACLAREN, James Malcolm, 1899 (*5*)
MAJOR, Charles Thomas (M.A. 1893), 1894

BACHELORS OF LAWS.

BAMFORD, Harry Dean (B.A. 1899), 1901
BAUME, Frederick Ehrenfried, 1891
BUCKLAND, Charles Channing, 1896
CLAYTON, Charles Ziegler (B.A. 1883), 1886
FIELD, Edward Thurlow (M.A. 1893), 1895
JACKSON, Thornton, 1900
MOORE, Joseph Harold (B.A. 1893), 1897
RATTRAY, Robert Henry (B.A. 1878), 1880
SHREWSBURY, Hugh (M.A. 1890), 1894

Admitted Ad Eundem Gradum:

BAKEWELL, Robert Hall, M.D. (St. Andrew's).
BEATTY, William, the Reverend, M.A. (Royal, Ireland).
BOURNE, Charles Frederick, M.A. (Oxford).
COWIE, William Garden, the Most Reverend, Primate of New Zealand, D.D. (Cambridge and Oxford), M.A. (Cambridge).
COWIE, Edmund Mortlock, the Reverend, M.A. (Cambridge).
NELSON, Charles Moseley, the Reverend, M.A. (Cambridge).
O'RORKE, Honble. Sir George Maurice, M.A., Hon. LL.D. (Dublin).
RUNCIMAN, David Williamson, the Reverend, M.A. (Glasgow).
SLOMAN, John Flashman, B.A. (Sydney).
TIBBS, James William, M.A. (Oxford).

(*5*) Sometime Director School of Mines, Coromandel.

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UNIVERSITY SENIOR SCHOLARSHIPS.

1888—GREEN, T. H., Experimental Science (Chemistry, Heat, Electricity).

1889—CARTER, F. J., Latin and English.

COWX, H. P., Mental Science.

GIFFORD, Sylvia E., Political Science.

NOTT, J. T., Natural Science (Zoology).

1890—JACKSON, D. H., Chemistry.

MACLAURIN, R. C., Mathematics.

1891—MAJOR, C. T., Mathematics.

SHREWSBURY, Elsie, Political Science.

1892—BOYLE, J., Chemistry.

1894—MAJOR, H. D. A., Geology.

1897—WATTS, P. H., Mathematics.

ALLEN, R. W., Chemistry.

1898—MACLAREN, J. M., Natural Science (Geology).

BAKER, W. H., Chemistry.

1899—FOX, C. E., Natural Science (Geology).

HUNTER, M. A., Chemistry.

POGSON, F. L., Latin (equal with another).

1900—CLARK, E. de C., Natural Science (Geology).

EXHIBITION 1851 SCIENCE SCHOLARSHIP.

1892—JACKSON, D. H., *Chemistry.

1894—MACLAURIN, J. S., †Chemistry.

*Renewed by Commissioners in 1894 for a third year.

†Relinquished the Scholarship.

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SINCLAIR SCHOLARSHIP.

1885—Wilson, F. E.

1888—No Appointment.

1895—No Appointment.

1896—Dinneen, Alice M. D.

1899—Steven, Martha.

GILLIES SCHOLARSHIP.

1885—Green, T. H.

1888—Grant, Jane D.

1895—Dromgool, J. C.

1898—Hunter, M. A.

1901—No Appointment.

SIR GEORGE GREY SCHOLARSHIP.

1900—Crump, A. R.

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UNDERGRADUATES.

NOTE.—This list, in order to avoid unduly loading the pages of the Calendar, does not contain the names of those Undergraduates who have not, although keeping their names on the Books of the University, presented themselves during the last two years at College Examination.

REFERENCES.—*J.S.* means Junior Scholar ; *S.S.* means Sinclair Scholar ; *G.S.* means Gillies Scholar.

Four Years' Terms have been kept by—

Hunter, B.Sc., M.A., *G.S.* | Clarke, B.A., E. de C.

Three Years' Terms have been kept by—

Ardern, P. S., *J.S.*
Baker, H. N.
Blair, Mary A.
Brown, G.
Crump, A. R.
Drew, Gertrude A.
Halliwell, L. V., *J.S.*
Harron, P. A.
Hetherington, Jessie I.
Ilbert, Rose D.
Long, F. C.
Low, D. W.
Mules, E. K.
McIntosh, Ethel M.
McSporran, R.
Severne, E. H.
Simpson, Helen
Sinclaire, F., *J.S.*
Stephenson, G. B., *J.S.*
Vickerman, H.
Wilson, E.

Two Years' Terms have been kept by—

Abbott, R. M. V.
Anderson, Elizabeth M.
Barrance, K. M.
Button, Lela
Chappell, A. B.
Coates, R. J.
Darrow, H. A.
Fox, Mrs. Grace

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UNDERGRADUATES.

Griffin, C J. A., *J.S.*
Haslam, J. H.
Holloway, J. E.
Hughes, H. B.
Hull, Cecil L. F., *J.S.*
Johnston, J. B.
Jones, H. B.
Kent, G. S.
Law, J. K.
Macdonald, R. A.
McLean, G.
Northcroft, Agnes M.
Short, A. W.
Skelton, A. E. H.
Steven, Martha, *S.S.*
Thorne, F. W.
Warren, T. F.
Watson, C. A. B.
Wernham, W. J.
Worley, F. P.
Urquhart, G.

One Year's Terms have been kept by—

Abbott, R. F. D.
Arnold, C. E.
Baker, Beatrice D.
Beale, S. J. A.
Bedford, H. H.
Bedford, R. H.
Berry, Elsie E.
Boult, C. N., *J.S.*
Bowen, Rosanna
Brown, D. C.
Collins, Rhoda M.
Dunlop, F. G.
Endean, W. P.
Fraser, C.
Hemus, Geraldine M.
Holloway, J. A.
Hosking, Florence V.
Jacobsen, Francis V. J., *J.S.*
Kay, W.
Kempthorne, J. A.
Lambourne, N. T.
Marshall, G. H.
Metcalfe, Marion H.
Moody, R. N.
Moore, W. E.
Newton, C. P.
Nolan, F. W.
Northcroft, Hilda M. (*aegrotat*), *J.S.*
Peacock Muriel M.
Pickmere, T. L.
Prior, N. H., *J.S.*
Shanahan, E. W.
Shepherd, A. J.
Smith, H. E. G.
Wyman, B. H.

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UNDERGRADUATES.

Students who have not kept one Year's Terms—

Adams, E. J
Armstrong, C. E. J.
Basley, P. H.
Bayly, R. H. R.
Belton, J.
Butler, Constance M.
Clark, B. C. P.
Downard, H. J. F.
Fenwick, H.
Gittos, Auriol E.
Grant, Helen D.
Grant, Laura M.
Gray, A. A.
Gray, M. D.
Hardie, Isabel M.
Hutchison, S.
Jones, Elizabeth R.
Lewin, H. E.
Macnamara, Annie M. B.
Maunder, G. T.
Massicks, Agnes J.
May, H. M.
Mickle, P. A. D.
Miller, J.
Moore-Jones, H. J.
Moore-Jones, Winifred L.
Morgan, Fanny
McElwain, Olive N.
McMaster, A. C.
Newman, Margaret S.
Northcroft, J. F. S.
Osborne, G. M. H.
Payne, H. M.
Pinfold, J. T.
Raikes, A. C.
Rishworth, H. C.
Rhodes, F. N.
Schischka, Edith R.
Simmonds, J. C.
Skelton, M. N.
Turnbull, Katherine A.
Tobin, C. E O'H.
Thomas, J. W.
Webb, Edith M.
Williams, O. W.

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ANNUAL EXAMINATION.

The Students who passed in the several subjects at the Annual Examination of the year 1901 were classified as follows :—

LATIN.

Advanced.

Sinclaire, F.
Ardern, P. S.

Class I.

McSporran, R.
Griffin, C. J. A.
Holloway, J. E.
Moore, W. E.

Class II.

Jacobsen. Frances V. J.
Endean, W. P.
Steven, Martha
Thorne, F. W. } equal
Brown, G. }
Worley, F. P. } equal
Button, Lela }
Short, A. W. }
Abbott, R. F. D. } equal
Macdonald, R. A. }
Northcroft, Agnes M. }
Williams, O. W.
Moody, R. N.
Smith, H. E. G.
Metcalfe, Marion H.
Barrance, K. M.

Class III.

Bedford, R. H.
Holloway, J. A.
Lambourne, N. T.
Newton, C. P.
Pickmere, L. T.
Dunlop, F. G.
Hosking, Florence V.
Moore, W. R.
Nolan, F. W.
Wyman, B. H.

GREEK.

Class III.

Pinfold, J. T.

ENGLISH.

Advanced.

Ardern, P. S. } equal
Jacobsen, Frances V. J. }

Class I.

Griffin, C. J. A.
Holloway, J. E.
Endean, W. P.
McIntosh, Ethel M.

Class II.

Williams, O. W.

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Moody, R. N.
Wernham, W. J.
Lambourne, N. T.
Dunlop, F. G.

Class III.

Abbott, R. F. D.
Bedford, R. H.
Button, Lela
Collins, Rhoda M.
Drew, Gertrude A.
Fenwick, H.
Holloway, J. A.
Hull, Cecil L. F.
Metcalfe, Marion H.
Macdonald, R. A.
Maclean, G.
Moore, W. E.
Moore, W. R.
Newton, C. P.
Nolan, F. W.
Pickmerf, L. T.
Thorne, F. W.
Wilson, E.
Worley, F. P.
Wyman, B. H.

FRENCH.

Class I.

Sinclaire, F.
Hull, Cecil L. F.

Class II.

Hunter, M. A.
Crump, A. R.
Northcroft, Agnes M.
Macky, S. H.
Button, Lela

Class III.

Collins, Rhoda M.
Endean, W. P.
Short, A. W.

GERMAN.

Class I.

Severne, E. H.

HISTORY AND POLITICAL ECONOMY.

Class I.

Long, F. C.
Hunter, M. A.

Class II.

Drew, Gertrude A.
Marshall, G. H.
Hetherington, Jessie I.
Wilson, E.
Brown, G.

JURISPRUDENCE AND CONSTITUTIONAL HISTORY.

Class I.

Long, F. C.
Maclean, G.

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Moore, W. E.
Hetherington, Jessie I.
Moody, R. N.
Drew, Gertrude A.

Class II.

Dunlop, F. G.
Wyman, B. H.
Macdonald, R. A.
Abbott, R. F. D.
Nolan, F. W.
Holloway, J. A.
Endean, W. P.
Thorne, F. W.
Newton, C. P.
Armstrong, C. E. J.
Pickmere, L. T.

PURE MATHEMATICS.

Honours 3rd Year.

Class I.
Halliwell, L. V.

Ordinary Course.

Class I.

Stephenson, G. B.
Holloway, J. E.
Wernham, W. J.

Class II.

Steven, Martha
Severne, E. H
Fraser, C.
Collins, Rhoda M.
Northcroft, Agnes M.
Hull, Cecil L. F.

Class III.

Arnold, C. E.
Button, Lela
Fenwick, H.
Grant, Laura M.
Hetherington, Jessie I.
Long, F. C.
Macky, S. H.
Metcalfe, Marion H.
Short, A. W.
Smith, H. E. G.

APPLIED MATHEMATICS.

Honours 3rd Year.

Class I.

Halliwell, L. V.

Ordinary Course.

Class I.
Stephenson, G. B.
Holloway, J. E.
Crump, A. R.

Class II.

Worley, F. P.
Fraser, C.

Class III.

Arnold, C. E.

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PHYSICS.

Class I.

Griffin, C. J. A.
Prior, N. H.
Fraser, C.
Vickerman, H.

Class II.

Jacobsen, Frances V. J.
Bonwick, E. W.

Class III.

Arnold, C. E.
Bedford, R. H.

CHEMISTRY.

Class I.

Fraser, C.

Class II.

Prior, N. H.
Bonwick, E. W.
Arnold, C. E.

Class III.

Bedford, R. H.
McSporran, R.

ALANCED CHEMISTRY.

Class I.

Halliwell, L. V.
Griffin, C. J. A.

Class II.

Steven, Martha

PRACTICAL CHEMISTRY.

Fraser, C.
Bonwick, E. W.
Prior, N. H.
Arnold, C. E.
Bedford, R. H.
McSporran, R.

PRACTICAL CHEMISTRY.

Senior.

Griffin, C. J. A.
Steven, Martha

BIOLOGY.

Class I.

McIntosh, Ethel M.
Steven, Martha
Prior, N. H.

Class II.

Northcroft, Hilda M.
Lambourne, N. T.
Northcroft, Agnes M.

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Class III.

Collins, Rhoda M.
Grant, Laura M.
Hosking, Florence V.
Hull, Cecil F. L.

JUNIOR BOTANY.

Class II.

Brown, A. G.

BOTANY (Advanced).

Class I.

Stephenson, G. B.

PRACTICAL BIOLOGY.

Advanced.

Stephenson, G. B.

Senior.

Blair, Mary
McIntosh, Ethel M.
Steven, Martha
Northcroft, Agnes M.
Hosking, Florence V.
Hull, Cecil L. F.

Junior.

Prior, N. H.
Northcroft, Hilda M.
Lambourne, N. T.
Collins, Rhoda M.
Grant, Laura.M.

PRACTICAL BOTANY.

Junior.

Brown, A. G.

GEOLOGY.

Class I.

Vickerman, H.
Wernham, W. J.

Class II.

Brown, G.
Bonwick, E. W.

Class III.

Pinfold, J. T.
Smith, H. E. G.

PRACTICAL GEOLOG.

Honours.

Clarke, E. de C.

Senior.

Wernham, W. J.
Vickerman, H.
Brown, G.

Junior.

Bonwick, E. W.
Smith, H. E. G.

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MENTAL SCIENCE.

Class II.

Wilson, E.
Vickerman, H.
Severne, E. H.

Class III.

Barrance, K. M.

SCHOOL OF MUSIC.

Advanced Division.

Class I.

Forbes, W. Forbes

Class II.

Webb, Eveline

Intermediate Division.

Class I.

Caley, William
Hunt, Horace
Lowther, Virginia E.
Webb, Edith M.
Hampson, May
Allen, Maggie

Class II.

Phillips, Kenneth
Davis, M. E.

Junior Division.

Class I.

Blades, Muriel K.
Grainger, Beatrice
Collis, Kate
Bogue, Mary A.
Gibbons, Jeannie
Binstead, Rosa

Class II.

Osborne, Beatrice

Class III.

Gorrie, Margaret A.
Thorne, Emily
Cordes, Adeline

MEDALLISTS.

Advanced.

Forbes, W Forbes

Junior.

Blades, Muriel K.

ASSOCIATE OF MUSIC.

Allen, Maggie C.
Lowther, Virginia E.

After the Annual Examination held in October, 1901, the following Students were accredited with having kept the terms of the year :—

Abbott, R. F. D.
Ardern, P. S.
Arnold, C. E.
Bedford, R. H.
Bonwick, E. W.
Brown, G.

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BUTTON, L.
COLLINS, R. M.
CLARKE, E. de C., B.A.
CRUMP, A. R.
DREW, G. A.
DUNLOP, F. G.
ENDEAN, W. P.
FRASER, C.
GRIFFIN, C J. A.
HALLIWELL, L. V.
HETHERINGTON, J. I.
HOLLOWAY, J. A.
HOLLOWAY, J. E.
HULL, C. L. F.
HUNTER, M. A., B.Sc.
JACOBSEN, F. V. J.
LAMBOURNE, N. T.
LONG, F. C.
METCALFE, M. H.
MOODY, R. N.
MOORE, W. E.
MACDONALD, R. A.
MCINTOSH, E. M.
MCLEAN, G.
MCSPORRAN, R.
NEWTON, C. P
NOLAN, F. W.
NORTHCROFT, A. M.
NORTHCROFT, H. M. (*aegrotat*)
PICKMERE, L. T.
PRIOR, N. H.
SEVERNE, E. H.
SHORT, A. W.
SINCLAIRE, F.
SMITH, H. E. G.
STEPHENSON, G. B.
STEVEN, M.
THORNE, F. W.
VICKERMAN, H.
WILSON, E.
WERNHAM, W. J.
WORLEY, F. P.
WYMAN, B. H.

PREMIUMS.

Latin : R. MCSPORRAN.

English : FRANCIS V. J. JACOBSEN.

French : F. SINCLAIRE.

Jurisprudence and Constitutional History : F. C. LONG.

Pure Mathematics : G. B. STEPHENSON.

Applied Mathematics : G. B. STEPHENSON.

Physics : N. H. PRIOR.

Chemistry : C. FRASER.

Biology : ETHEL M. MCINTOSH.

Geology : H. VICKERMAN.

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Presentations to College Library

DURING 1901.

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Report of the President, 1900-01.

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FORM OF LEGACY.

I give (free from legacy duty) the sum of
pounds to the Auckland University College, established at Auckland by "The Auckland University College Act, 1882," and I declare that the receipt of the Registrar for the time being of the said College shall be a sufficient discharge for the said legacy.

NOTE.—If any special direction or condition is to be attached to the Legacy, insert it here.

FORM OF ATTESTATION FOR A WILL.

Signed by the testator
as and for his last will and testament, in the sight and presence of us together, who in his sight and presence, at his request and in the sight and presence of each other, have hereunto subscribed our names as witnesses.

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v.

ANNUAL EXAMINATION,

October, 1901.

LATIN TRANSLATION.

Examiner: Professor H. A. Talbot-Tubbs.

I. Translate, adding notes if you think them required—

(*a*) Eius rei fama varie homines adfecit. Pars occupatis maiore ægritudine animis levem ex comparatione priorum ducere recentem equitum iacturam, pars non id quod acciderat per se æstimare, sed, ut in adfecto corpore quamvis levis causa magis quam in valido gravior sentiretur, ita tum ægræ et adfectæ civitati quodcumque adversi inciderit, non rerum magnitudine sed viribus extenuatis, quæ nihil quod adgravaret pati possent, æstimandum esse.

(*b*) Ager omnis medius erat prima specie inutilis insidiatori, quia non modo silvestre quicquam sed ne vepribus quidem vestitum habebat, re ipsa natus tegendis insidiis, eo magis quod in nuda valle nulla talis fraus timeri poterat: et erant in anfractibus cavæ rupes, ut quædam earum ducenos armatos possent capere.

(*c*) Impulsis deinde ac trepide referentibus pedem institere, ac tenore uno per præceps pavore fugientium agmen in mediam primum aciem illati postremo nullo resistente ad subsidia Afrorum pervenerunt, qui utrinque reductis alis constiterant, media, qua Galli Hispanique steterant, aliquantum prominente acie. Qui cuneus ut pulsus æquavit frontem primum, dein cedendo etiam sinum in medio dedit, Afri circa jam cornua fecerant, irruentibusque incaute in medium Romanis circumdedere alas; mox cornua extendendo clausere et ab tergo hostes.

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(*d*) "Capi ergo mavultis" inquit "ab avarissimo et crudelissimo hoste, æstimarique capita vestra et exquiri pretia ab interrogantibus, Romanus civis sis an Latinus socius, ut ex tua contumelia et miseria alteri honos quæratur? Non tu, si quidem L. Æmilii consulis, qui se bene mori quam turpiter vivere maluit, et tot fortissimorum virorum, qui circa eum cumulati iacent, cives estis."

(*e*) Liberi atque incolumes desiderate patriam: immo desiderate, dum patria est, dum cives eius estis. Sero nunc desideratis, deminuti capite, abalienato iure civium, servi Carthaginiensium facti. Pretio redituri estis eo, unde ignavia ac nequitia abistis?

(*f*) Is iuvenis, ut primum ex eo genere quæstus pecunia a patre relicta animos ad spem liberalioris fortunæ fecit, togaque et forum placuere, proclamando pro sordidis hominibus causisque adversus rem et famam bonorum primum in notitiam populi deinde ad honores pervenit: quæsturaque et duabus ædilitatibus, plebeia et curuli, postremo et prætura perfunctus iam ad consulatus spem cum adtolleret animos, haud parum callide auram favoris popularis ex dictatoris invidia petiit scitique plebis unus gratiam tulit.

(*g*) Contra elata mari respondet Gnosia tellus:
hic crudelis amor tauri suppostaque furto
Pasiphae mixtumque genus prolesque biformis
Minotaurus inest, Veneris monumenta nefandae;
hic labor ille domus et inextricabilis error;
magnum reginae sed enim miseratus amorem
Daedalus ipse dolos tecti ambagesque resolvit
caeca regens filo vestigia. tu quoque magnam
partem opere in tanto, sineret dolor, Icare, haberes.

(*h*) Tum iussa Sibyllae,
haud mora, festinant flentes aramque sepulchri
congerere arboribus caeloque educere certant.
itur in antiquam silvam, stabula alta ferarum,
procumbunt piceae, sonat icta securibus ilex
fraxineaeque trabes cuneis et fissile robur
scinditur, advolvunt ingentis montibus ornos.

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(*i*) Tris notus hibernas immensa per aequora noctes
vexit me violentus aqua; vix lumine quarto
prospexi Italiam summa sublimis ab unda.
paullatim adnabam; terrae iam tuta tenebam,
ni gens crudelis madida cum veste gravatum
prensantemque uncis manibus capita aspera montis
ferro invasisset praedamque ignara putasset.

(*k*) Hic, quibus invisi fratres, dum vita manebat,
pulsatusve parens et fraus innexa clienti,
aut qui divitiis soli incubuere repertis,
nec partem posuere suis, quae maxima turba est,
quique ob adulterium caesi quique arma secuti
impia nec veriti dominorum fallere dextras,
inclusi poenam expectant. ne quaere doceri,
quam poenam, aut quae forma viros fortunave mersit.

(*l*) Quin et supremo cum lumine vita reliquit,
non tamen omne malum miseris nec funditus omnes
corporeae excedunt pestes, penitusque necesse est
multa diu concreta modis inolescere miris.
ergo exercentur poenis veterumque malorum
supplicia expendunt: aliae panduntur inanes
suspensae ad ventos; aliis sub gurgite vasto
infectum eluitur scelus aut exuritur igni.
quisque suos patimur manes. exinde per amplum
mittimur Elysium et pauci laeta arva tenemus.
donec longa dies perfecto temporis orbe
concretam exemit labem purumque relinquit
aetherium sensum atque aurai simplicis ignem.

II. Translate, commenting fully on form of words, syntax, or variant reading—

(*a*) Si res publica populi Romani Quiritium ad quinquennium proximum salva servata erit hisce duellis . . . . tum donum duit . . . . Si quis clepsit, ne populo scelus esto, neve cui cleptum erit. Si atro die faxit insciens, probe factum esto.

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(*b*) Dictator contionibus se abstinuit in actione minime popularis.

(*c*) ut in manu eius essent comitia rogando collegæ.

(*d*) unus ex iis domum abiit, quod fallaci reditu in castra iure iurando se exsolvisset.

(*e*) Foliis tantum ne carmina manda :
Ipsa canas oro.

(*f*) Illa, chorum simulans, evantes orgia circum
Ducebat Phrygias.

(*g*) an quae te fortuna fatigat
Ut tristes sine sole domos, loca turbida, adires ?

(*h*) altera candenti perfecta nitens elephanto.

III. Explain the following terms and phrases—Lectisternium, pedibus in sententiam ire, plebeii nobiles, in ancoras evehi, prodigia ex libris procurare, publico carere, mediusfidius, senatus summotis arbitris consuli cœptus, quantum instar in ipso, hortator scelerum Æolides, Amphrysia vates, Euboicæ Cumarum oræ, eruet ille Argos Agamemnoniasque Mycenas.

IV. Plan and describe the Battle of Cannæ.

V. Collect and classify instances of similar turns of phrase and forms of syntax in Livy and Vergil.

VI. Translate—

(*a*) Et via vix tandem voci laxata dolore est :
" Non haec, o Palla, dederas promissa parenti
Cautius ut saevo velles te credere Marti !
Haud ignarus eram, quantum nova gloria in armis,
Et prædulce decus primo certamine posset.
Primitiæ iuvenis miseræ ! bellique propinqui

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Dura rudimenta! et nulli exaudita deorum
Vota precesque meæ! tuque o sanctissima coniux
Felix morte tua, neque in hunc servata dolorem!
Contra ego vivendo vici mea fata, superstes
Restarem ut genitor. Troum socia arma secutum
Obruerent Rutuli telis! Animam ipse dedissem
Atque haec pompa domum me, non Pallanta, referret.

(*b*) 'Quid' inquit 'homini Arpinati cum aquis calidis?' 'Narra' inquam 'patrono tuo, qui Arpinates aquas concupivit.' 'Quousque' inquit 'hunc regem feremus?' 'Regem appellas' inquam 'cum Rex tui mentionem nullam fecerit?' (Ille autem Regis hereditatem spe devoraverat.) 'Domum' inquit 'emisti.' 'Putasne' inquam 'dicere, iudices emisti?' 'Iuranti' inquit 'tibi non crediderunt.' 'Mihi vero' inquam 'xxv iudices crediderunt, xxxi, quoniam nummos ante acceperunt, tibi nihil crediderunt.' Magnis clamoribus adflictus conticuit.

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LATIN COMPOSITION AND GRAMMAR.

Examiner: PROFESSOR H. A. TALBOT-TUBBS.

1. Translate into Latin—

(*a*) For Pass Students only who have not kept one year's terms—

I am not angry that my letter is, as you tell me, made public (pervolgare): indeed such is the position of affairs that I wish all to know what I think upon this matter. In advising Pompey to leave Italy I saw that I could not influence (movere) him in any other way than by saying it would show his sound sense. Would you not have done the same? For Pompey is no longer the man I once admired and loved. He seems to me to think only of his own safety: and to be ready to desert us if he can do so with advantage to himself. Write and tell me whether you think as I do.

(N.B.—You may use *either* Oratio Recta, *or* Obliqua.)

(*b*) For all other candidates—

Cortes receiving his commission with the warmest expressions of gratitude to the Governor, immediately erected his standard in front of his own house and assumed all the ensigns of his new dignity. His utmost influence was exerted in persuading his friends to engage in the service and in urging forward the preparations for the voyage. All his own funds, together with what money he could raise by mortgaging his lands, were expended in purchasing military stores, or in supplying the wants of such of his officers as

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were unable to equip themselves in a manner suited to their rank. Inoffensive and even laudable as this conduct was, his disappointed competitors were malicious enough to give it a turn to his disadvantage. They represented him as aiming already, with little disguise, at securing for himself an irresponsible authority, and winning the devotion of his troops by an ostentatious liberality.

II. Grammar of prescribed books—

(*a*) Parse fully :—Nefandae, perosi, viden, virum, antidea, quippe, receptui.

(*b*) Explain whatever is deserving of note in the syntax of the following :—Ad mille hominum, cum iis quaestore amisso—primo idem consilii fuit—alternis fidentem ac diffidentem—libertini etiam, quibus liberi essent, in verba iuraverant—coniectans ex unius coloniae haud maximae minime prospere tentatae viribus—stabant orantes primi transmittere cursum—recens a volnere Dido—pariter gressi per opaca viarum—stant sale Tyrrheno classes—viden ut stant vertice cristae.

(*c*) What uses of the participles have you observed in Vergil, which vary from the rule of ordinary prose? *Quote examples* to illustrate.

III.—General Grammar—

(*a*) Write down *dat. sing.*, *gen. plu.*, *gender* of redux, unus, nubes, bos, cos, dos, deses, mel, remex.

(*b*) *Chief parts* cupio, facesso, pasco, tonare, haereo, desino. *Construction* of libet, assuesco, spero, consulo, rogo, volo.

(*c*) Correct, where requisite, the syntax of the following :—

Melius erat si dimicasset ; peream si non piscem putavi ; mei non interest utrum eas an maneas ; video causas esse permultas quae istum impellerent ; privatum esse quam consulem maluit ; incolumem esse licet ; Cæsar postquam venerat, Rhenum transiit ; rogatus qui esset

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X.

ANNUAL EXAMINATION.

LATIN COMPOSITION AND GRAM...

Examiner: Professor H. S. TAPPAN.

1. Translate into Latin:

For Pass Students only who have not ... terms.

I am not angry that my letter is... polite (perelegans) indeed such is the ... I wish all to know what I think ... minister Pompey to leave Italy I ... quietly (tranquille) him in any other ... would show his sound sense. Would ... same. For Pompey is no longer ... and (even). He seems to me to think ... and to be ready to desert us if he ... to himself. Write and tell me ...

(N. B.—You may use either One ...

(b.) For all other candidates—

Cicero writing to ... professions of patriot... his attachment to ... energies of ... exerted to ... and has ... his ... heart ... steadfastly.

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ETC. (ADVANCED).

A. TALBOT-TUBBS.

...ity and temper in debate, and
submission of judgment, as if
...own with him but a desire of
: yet he had so subtle a way of
...he notions of doubt insinuating
...is opinions with those from whom
... receive them. And even with
...serve themselves from his infusions,
...ns to be fixed in him with which
...he always left the character of an
...ious person. He was of an industry
... wearied by the most laborious; of
... upon by the most subtle; and of a
... his best parts, so that he was an
... wherever he might have been made

...ments—

... a me in maxumam malam crucem?

...sque res agebam commodum.

...; quis vivit me mortalis miserior?

... multo tanto miserior quam tu, Labrax.

...? Ch.—Quia ego indignus sum, tu dignus qui sies.

... scirpe, scirpe, laudo fortunas tuas
... semper servas gloriam aritudinis.

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nescire se dixit; in curiam reditus omnes abire imperavit; dicit urbem ab hostibus esse capturum; manebo dum exit.

Give reasons for your decision in each case.

(*d*) What is meant by the "Unity" of a Latin sentence? Discuss and illustrate.

(*e*) Set forth, *with examples*, the chief uses of the Subjunctive Mood.

IV. Translate, observing the normal Latin mode of expressing the thought —

1. Loud cheers greeted the announcement.
2. Obedience to the law brings freedom from anxiety.
3. His object was to encourage trade.
4. He was more learned than tactful.
5. Loyalty was liberally rewarded.
6. The want of letters from you, leaves me in doubt as to my best course of action.

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ANNUAL EXAMINATION.

LATIN COMPOSITION, ETC. (ADVANCED).

Examiner: PROFESSOR H. A. TALBOT-TUBBS.

I. Translate into Latin—

He was of that rare affability and temper in debate, and of that seeming humility and submission of judgment, as if he brought no opinions of his own with him but a desire of information and instruction; yet he had so subtle a way of interrogating, and under the notions of doubt insinuating his objections, that he left his opinions with those from whom he pretended to learn and receive them. And even with them who were able to preserve themselves from his infusions, and discerned those opinions to be fixed in him with which they could not comply, he always left the character of an ingenious and conscientious person. He was of an industry and vigilance not to be wearied by the most laborious; of parts not to be imposed upon by the most subtle; and of a personal courage equal to his best parts, so that he was an enemy not to be wished wherever he might have been made a friend.

II. Translate, *with comments*—

(*a*) Quin tu hinc eis a me in maxumam malam crucem?

Ch.—Eas: easque res agebam commodum.

La.—Eheu; quis vivit me mortalis miserior?

Ch.—Ego multo tanto miserior quam tu, Labrax.

La.—Qui? Ch.—Quia ego indignus sum, tu dignus qui sies.

La.—O scirpe, scirpe, laudo fortunas tuas
Qui semper servas gloriam aritudinis.

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ANNUAL EXAMINATION.

Ch.—Equidem me ad velitationem exerces:
Nam omnia corusca prae tremore fabulor.

La.—Edepol, Neptune, es balineator frigidus:
Cum vestimentis postquam abs te abii, algeo.
Ne thermipolium quidem ullum instruit:
Ita salsam praebibet potionem et frigidam.

Ch.—Ut fortunati sunt fabri ferrarii,
Qui apud carboncs adsident: semper calent.

(*b*) Audeat haec aetas plura et inveniat et inventis gaudeat, sint licet illa non satis sicca interim et severa. Facile remedium est ubertatis: sterilia nullo labore vincuntur. Illa mihi in pueris natura minimum spei dederit, in qua ingenium iudicio praesumitur. Materiam esse primum volo vel abundantiorem atque ultra quam oporteat fusam. Multum inde decoquent anni, multum ratio limabit, aliquid velut usu ipso deteretur, sit modo unde excidi possit et quod exculpi; erit autem, si non ab initio tenuem nimium laminam duxerimus et quam caelatura altior rumpat. Quod me de his aetatibus sentire minus mirabitur qui apud Ciceronem legerit: *Volo enim se efferat in adolescente fecunditas.*

III. Discuss the following passages, with or without translation—

(1) Quae nimia et incertum an falso iacta originem e severitate ducis traxere.

(2) Factum est senatus consultum ultioni iuxta et securitati.

(3) Si piguit portas ultra procedere, at illuc
iussisses lectum lentius ire meum.

(4) Atque utinam posses uni mihi bella videri
displiceas aliis sic ego tutus ero.

(Punctuate this couplet as you may think best.)

(5) Dicitur . . . Plautus ad exemplar Siculi properare Epicharmi.

(6) Neque ille
Sepositi ciceris nec longae invidit avenae.

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ANNUAL EXAMINATION.

IV. (1) Had the Roman comitia judicial functions?

(2) What elements of the Roman Constitution can be carried back to (*a*) the regal, (*b*) the ante-regal period: and on what grounds?

(3) "Lucretii poemata, ut scribis, ita sunt; multis luminibus ingenî, multae etiam artis." Discuss this criticism.

(4) Describe and account for the chief characteristics of the Augustan period.

(5) Explain the following terms:—Palliata, Rhinthonica, versus Saturnini, Plautine hiatus, nominis postulatio, V.R., N.L., cohors praetoria, Maeniana, puteal, sors praerogativae Aniensi iuniorum exiit.

(6) Discuss Roman religion: its original character and later phases.

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ANNUAL EXAMINATION.

GREEK TRANSLATION.

Examiner: PROFESSOR H. A. TALBOT-TUBBS.

1. Translate, with notes if required:—

(*a*) ὁποιόν τι μέντοι ἐστὶ τὸ τοιοῦτον ὄναρ ἰδεῖν, ἔξεστι σκοπεῖν ἐκ τῶν συμβάντων μετὰ τὸ ὄναρ. γίγνεται γὰρ τάδε. εὐθὺς ἐπειδὴ ἀνηγέρθη, πρῶτον μὲν ἔννοια αὐτῷ ἐμπίπτει· Τί κατάκειμαι; ἡ δὲ ἰὺξ προβαίνει· ἅμα δὲ τῇ ἡμέρᾳ εἰκὸς τοὺς πολεμίους ἥξειν. εἰ δὲ γενησόμεθα ἐπὶ βασιλεῖ, τί ἐμποδὼν μὴ οὐχὶ πάντα μὲν τὰ χαλεπώτατα ἐπιδόντας, πάντα δὲ τὰ δεινότατα παθόντας, ὑβριζομένους ἀποθανεῖν; ὅπως δ' ἀμυνούμεθα οὐδεὶς παρασκευάζεται οὐδὲ ἐπιμελεῖται, ἀλλὰ κατακείμεθα ὥσπερ ἐξὸν ἡσυχίαν ἄγειν. ἐγὼ οὖν τὸν ἐκ ποίας πόλεως στρατηγὸν προσδοκῶ ταῦτα πράξειν; ποίαν δ' ἡλικίαν ἐμαυτῷ ἐλθεῖν ἀναμένω; οὐ γὰρ ἔγωγ' ἔτι πρεσβύτερος ἔσομαι, ἐὰν τήμερον προδῶ ἐμαυτὸν τοῖς πολεμίοις.

(*b*) καὶ ἡμᾶς δ' ἂν ἔφην ἔγωγε χρῆναι μήπω φανεροὺς εἶναι οἱκαδε ὡρμημένους, ἀλλὰ κατασκευάζεσθαι ὡς αὐτοῦ που οἰκήσοντας. οἶδα γὰρ ὅτι καὶ Μυσοῖς βασιλεὺς πολλοὺς μὲν ἡγεμόνας ἂν δοίη, πολλοὺς δ' ἂν ὁμήρους τοῦ ἀδόλως ἐκπέμψειν, καὶ ὁδοποιήσειέ γ' ἂν αὐτοῖς, καὶ εἰ σὺν τεθρίπποις βούλοιντο ἀπιέναι. καὶ ἡμῖν γ' ἂν οἶδ' ὅτι τρισάσμενος ταῦτ' ἐποίει, εἰ ἑώρα ἡμᾶς μένειν παρασκευαζομένους.

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(c) δεήσομαι δὲ καὶ τῶν δεσμῶν οἷς χρῆσθε περὶ τὰ ὑποζύγια· τούτοις ζεύξας τοὺς ἀσκοὺς πρὸς ἀλλήλους, ὁρμίσας ἕκαστον ἀσκὸν λίθους ἀρτήσας καὶ ἀφεὶς ὥσπερ ἀγκύρας εἰς τὸ ὕδωρ, διαγαγὼν καὶ ἀμφοτέρωθεν δήσας, ἐπιβαλῶ ὕλην καὶ γῆν ἐπιφορήσω· ὅτι μὲν οὖν οὐ καταδύσεσθε αὐτίκα μάλα εἴσεσθε· πᾶς γὰρ ἀσκὸς δύο ἄνδρας ἕξει τοῦ μὴ καταδῦναι· ὥστε δὲ μὴ ὀλισθάνειν ἡ ὕλη καὶ ἡ γῆ σχήσει.

(d) ΑΠ. ἔστ' οὖν ὅπως Ἄλκηστις εἰς γῆρας μόλοι ;
ΘΑ. οὐκ ἔστι· τιμαῖς κἀμὲ τέρπεσθαι δόκει.
ΑΠ. οὔ τοι πλέον γ' ἂν ἢ μίαν ψυχὴν λάβοις.
ΘΑ. νέων φθινόντων μεῖζον ἄρνυμαι γέρας.
ΑΠ. κἂν γραῦς ὅληται, πλουσίως ταφήσεται.
ΘΑ. πρὸς τῶν ἐχόντων, Φοῖβε, τὸν νόμον τίθης.
ΑΠ. πῶς εἶπας ; ἀλλ' ἦ καὶ σοφὸς λέληθας ὤν ;
ΘΑ. ὠνοῖντ' ἂν οἷς πάρεστι γηραιοὺς θανεῖν.
ΑΠ. οὐκ οὖν δοκεῖ σοι τήνδε μοι δοῦναι χάριν ;
ΘΑ. οὐ δῆτ'· ἐπίστασαι δὲ τοὺς ἐμοὺς τρόπους.
ΑΠ. ἐχθρούς γε θνητοῖς καὶ θεοῖς στυγουμένους.

(e) ΧΟ. ὦ Πελίου θύγατερ, στρ.
χαίρουσά μοι εἶν, Ἀΐδα δόμοισιν
τὸν ἀνάλιον οἶκον οἰκετεύοις.
ἵστω δ' Ἀΐδας ὁ μελαγχαίτας θεὸς ὅς τ' ἐπὶ κώπᾳ
πηδαλίῳ τε γέρων
νεκροπομπὸς ἵζει,
πολὺ δὴ πολὺ δὴ γυναῖκ' ἀρίστην
λίμναν Ἀχεροντίαν πορεύσας ἐλάτᾳ δικώπῳ.
πολλά σε μουσοπόλοι ἀντ.
μέλψουσι καθ' ἑπτάτονόν τ' ὀρείαν
χέλυν ἔν τ' ἀλύροις κλέοντες ὕμνοις,

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Σπάρτᾳ κυκλὰς ἀνίκα Καρνείου περινίσσεται ὥρα
μηνός, ἀειρομένας
παννύχου σελάνας,
λιπαραῖσί τ' ἐν ὀλβίαις Ἀθάναις.
τοίαν ἔλιπες θανοῦσα μολπὰν μελέων ἀοιδοῖς.

(*f*) οὐ γάρ ποτ' οὔτ' ἂν βαρβίτου θίγοιμ' ἔτι
οὔτ' ἂν φρέν' ἐξαίροιμι πρὸς Λίβυν λακεῖν
αὐλόν· σὺ γάρ μοι τέρψιν ἐξείλου βίου.
σοφῇ δὲ χειρὶ τεκτόνων δέμας τὸ σὸν
εἰκασθὲν ἐν λέκτροισιν ἐκταθήσεται,
ᾧ προσπεσοῦμαι καὶ περιπτύσσων χέρας
ὄνομα καλῶν σὸν τὴν φίλην ἐν ἀγκάλαις
δόξω γυναῖκα καίπερ οὐκ ἔχων ἔχειν,
ψυχρὰν μέν, οἶμαι, τέρψιν, ἀλλ' ὅμως βάρος
ψυχῆς ἀπαντλοίην ἄν· ἐν δ' ὀνείρασι
φοιτῶσά μ' εὐφραίνοις ἄν· ἡδὺ γὰρ φίλους
κἂν νυκτὶ λεύσσειν, ὅντιν' ἂν παρῇ χρόνον.

2. (*a*) Account for differences in vocabulary and syntax between Attic Tragedy and "Attic Prose," and explain the dialectic and other variations in the several parts of a tragedy.

Or (*b*) Collect and arrange examples of "un-Attic" words, phrases, and constructions from Xenophon.

3. (*a*) Give some description of a Greek tragedy—its staging, costumes, stage machinery, character and distribution of the musical parts.

Or (*b*) Write a critique on Xenophon as a historian, with reference both to style and matter.

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4. Translate into English:—

(*a*) Ἐνταῦθα δὴ κοινῇ ἐβουλεύοντο· καὶ τοῦ Ξενοφῶντος ἐρωτῶντος τί τὸ κωλύον εἴη εἰσελθεῖν, εἶπεν ὁ Χειρίσοφος· Μία αὕτη ἐστὶ πάροδος, ἣν ὁρᾷς· ὅταν δέ τις ταύτῃ πειρᾶται παριέναι, κυλινδοῦσι λίθους ὑπὲρ ταύτης τῆς ὑπερεχούσης πέτρας· ὃς δ' ἂν καταληφθῇ, οὕτω διατίθεται. Ἅμα δ' ἔδειξεν αὐτῷ συντετριμμένους ἀνθρώπους καὶ σκέλη καὶ πλευράς. Ἦν δὲ καὶ τοὺς λίθους ἀναλώσωσιν, ἔφη ὁ Ξενοφῶν, ἄλλο τι ἢ οὐδὲν κωλύει παριέναι; οὐ γὰρ δὴ ἐκ τοῦ ἐναντίου ὁρῶμεν εἰ μὴ ὀλίγους τούτους ἀνθρώπους, καὶ τούτων δύο ἢ τρεῖς ὡπλισμένους. Τὸ δὲ χωρίον, ὡς καὶ σὺ ὁρᾷς, σχεδὸν τρία ἡμίπλεθρά ἐστιν ὃ δεῖ βαλλομένους διελθεῖν. Τούτου δὲ ὅσον πλέθρον δασὺ πίτυσι διαλειποίσαις μεγάλαις, ἀνθ' ὧν ἑστήκοτες ἄνδρες τί ἂν πάσχοιεν ἢ ὑπὸ τῶν φερομένων λίθων ἢ ὑπὸ τῶν κυλινδουμένων;

(*b*) οἴμοι,
τέκνα μή τι πάθηθ' ὡς ὑπεραλγῶ.
δεινὰ τυράννων λήματα, καί πως
ὀλίγ' ἀρχόμενοι, πολλὰ κρατοῦντες
χαλεπῶς ὀργὰς μεταβάλλουσιν.
τὸ γὰρ εἰθίσθαι ζῆν ἐπ' ἴσοισιν
κρεῖσσον.

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ANNUAL EXAMINATION.

GREEK COMPOSITION AND GRAMMAR.

Examiner :—Professor H. A. Talbot-Tubbs.

1. Translate into Greek :—

The Greeks continued to advance along the road which led towards the river. Arrived there, they found the enemy already posted on the opposite bank and ready to dispute the passage. It was accordingly decided to encamp where they stood and wait for the approach of night: then silently to break camp and return to the villages they had left the day before. For they hoped that the enemy would not notice their retreat, and would recross the river: and so they might be able to compel them to fight with the river in their rear. ("Break camp," use *ἀνασκευάζομαι*)

2. Grammar of prepared books :—

(*a*) Parse *πέπανται, ἀνατεινάτω, μαρτυροίη, χειροπληθέσι, ἀπήεσαν, διάσχῃ, ἀπλακὼν, σφῷν, συνέτλας, μόλοι, πελάσσαι, πλάθει.*

(*b*) Explain the construction of the following :—

1. *ὁ δὲ ἐπήρετο τίνι ἂν θεῶν θύων ἄριστα ἔλθοι τὴν ὁδὸν ἣν ἐπινοεῖ.*
2. *ἀλλ' ὅπως τοι μὴ ἐπ' ἐκείνῳ γενησόμεθα πάντα ποιητέον.*
3. *ὥστε, οὕτω γ' ἐχόντων, οὐκ οἶδα ὅ τι ἄν τις χρήσαιτο αὐτοῖς.*
4. *ἀλλ' οὖν ἐκεῖσε προσδόκα μ', ὅταν θάνω.*
5. *ἀπωλόμην ἄρα, εἴ με δὴ λείψεις γύναι.*
6. *εἰσηκοΐσατε*
   πατρὸς λέγοντος μὴ γαμεῖν ἄλλην ποτὲ.

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3. General Grammar :—

(*a*) Write down the *gen. sing.*, *dat. plu.*, *gender* of κύων, δένδρον, γόνυ, χείρ, ἀστήρ, βοῦς, λέων, ὕδωρ. The *imperf. indic. act.* of τίθημι, ὁράω, εἶμι, φημί. *Opt. 2nd aor. mid.* of δίδωμι and ὠνέομαι. *Imperat. 2nd aor. act.* of ἔχω, ἵημι, πάσχω.

(*b*) Chief tenses of the following :—αἰσθάνομαι, ἁλίσκομαι, δείκνυμι, ἐλαύνω, κρίνω, λαγχάνω, νομίζω, ὄμνυμι, παίω, σκοπέω.

(*c*) Form the other degrees of comparison of :—αἰσχρός, μέλας, μεσαίτερος, κράτιστα. ἥσυχος, ῥᾷστα, κύντατος, πρότερος, ἄνω.

(*d*) Give, with examples (made or quoted), a paradigm of the forms of conditional sentences in Greek.

4. Translate into Greek :—"If you had been wise, you would not have done this." "He said that the enemy was close at hand." "He knows that he will not become King." "Would that it were in my power to do so." "Let us go before he arrives." "Tell me how many there are." "The men of former days would not do so." "Are you not he whom I am to meet?"

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ANNUAL EXAMINATION.

ENGLISH LANGUAGE.

Examiner: PROFESSOR EGERTON.

(For questions (1) *and* (2) *advanced students are requested to substitute those at the end of the paper.)*

1. Translate—

(*a*) Æthelred cyning cōm hām tō his āgenre thēode, and hē glædlīce fram him eallum onfangen wearth.

(*b*) An thāra nīetena wæs on menniscre onsīene him ætiewed, ōther on lēon onsīene, *thridde* on cealfes, *feorthe* on earnes.

(*c*) Witodlīce æfter miclum fierste cōm thāra thēowa hlāford, and *dihte* him gerād.

(*d*) Thā sind gesælige the him thegniath to ge-cwēmednesse on thæm gāstlīcum *gerynum.*

(*e*) Swā hrathe swā hē geseah thæs sanctes līchaman, thā āwēdde he sōna, and wæl-hrēowlīce grymetode.

(*f*) Give the principal parts of the verbs from which are derived cōm, onfangen, dihte.

(*g*) Write brief notes on the words in italics.

2. Translate—(*a*) Forr thurrh-thatt-tatt tu læressт hemm
to ben sammtale and sahhte
to theowwtenn an all mahhtig Godd
Withth anfāld rihhte læfe,
And agg to ben ummbenn thatt an
to winnenn eche blisse,
thurrh-thatt tu sammnesst hemm i Godd,
thu gaddresst corn togeddre.

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(*b*) Wouh thet me misdeth us, other of word other of werc, thet is ure raunsun thet we schulen areimen us mide, and acwiten ure dettes touward ure Loverd, thet beoth ure sünnen; vor withute cwitaunce up of his prisune nis non inumen.

(*c*) What signs of French influence are visible in (*b*)?

3. Explain fully the development of the English comparative suffix.

4. Briefly describe the form of English spoken at the end of the fourteenth century; showing in what respects it differed from the Old English; account for these differences.

5. What signs of dialect are to be detected in the following sentences:—

(*a*) I sal se thine hevenes hegh.

(*b*) Lowe men holdeth to Engliss.

(*c*) He prayses ald men.

(*d*) Tha answerede the other, that wes the aldeste brother
Lust me nu lauerd King, and ich the wullen cuthen
What cnihtes we beoth.

6. What evidence is there of the date of "Lear?" What is known of the sources from which Shakespere drew materials for "The Tempest?"

7. Briefly estimate the character and function of the Fool in *Lear?*

What are the chief merits and defects of *Romola* as a historical novel?

9. Explain the following quotations and mention the connection in which they occur:—

(*a*) Election makes not up on such conditions.

(*b*) Our means secure us and our mere defects
Prove our commodities.

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(*c*) As I stood here below, methought his eyes
Were two full moons; he had a thousand noses,
Horns whelked and waved like the enridged sea.

(*d*) Court holy-water in a dry house is better than this rain-water out o' door.

(*e*) Ise try whether your costard or my ballow be the harder.

(*f*) Their rising senses
Begin to chase the ignorant fumes that mantle
Their clearer reason.

(*g*) Nature should bring forth,
Of it own kind, all foison all abundance,
To feed my innocent people.

(*h*) I'll get thee
Young scamells from the rock.

(*i*) Our Phœnix, the incomparable Pico, has shown that your horoscopes are all a nonsensical dream.

(*k*) She had still time to complete her equipment as a *pinzochera*.

10. (Answer very briefly)—

(*a*) How did Stephano escape from the wreck?

(*b*) In what obsolete sense does Shakespere use the word "passion?" Quote a line to illustrate.

(*c*) Who was Monsieur La Far?

(*d*) What are the "ear kissing arguments" which Curan communicates to Edmund?

(*e*) "The foster nurse of Nature is—" Complete and quote any parallel that you may remember.

(*f*) "Edmund the base
Shall top the legitimate." What other readings are there of this?

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(*g*) What name did Romola's brother assume upon entering the brotherhood which he joined ?

EXTRA QUESTIONS.

Students who have been attending "Honours" Lectures are required to substitute the following for questions (1) *and* (2) :—

1. Translate—

(*a*) And beon hēora menn frīge æfter heora bēira dæge. Ond ne āstinge nān mann æfter heora dæge on thæt land buton se hyred æt Crīstes-cyrcean ; and yrfan hī swā hī wyrthe witon.

(*b*) Ond nū ure Crīstne Roma bespricth that hiera weallas for ealdunge brosnien, nāles nā for thæm the hio mid forheriunge swā gĕbismrad wære swā Babylonia wæs ; ac heo for hiere crīstendōme nū giet is gescild, thæt ægther ge hīo self ge hiere anweald is mā hrēosende for ealddōme thonne of æniges cyninges nīede.

(*c*) Elewsius wite thu hit wel ireadi. Wraththi so thu wraththi. No lengre *nulich* heolen the. Yef thu wult leaven the lahen that thu list in. Ant leven in godd feder & in his deorewurthe sune. & ithe *hali gast* ichulle wel neomen the. Yef thu nult no : thu art *wundi* of me.

(*d*) Discuss the significance of the italicised forms in (*c*).

(*e*) What are the characteristics of Early Kentish.

2. From a philological point of view give a brief account of Layamon's "Brut."

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ANNUAL EXAMINATION.

ENGLISH LITERATURE.

Examiner : PROFESSOR EGERTON.

1. Give a brief account of the sonnet writers of Elizabeth's time.

2. Give a brief account of Spenser's *Shepherd's Calendar* or *Prothalamion.*

3. Discuss the statement that the moral of Spenser's *Faerie Queene* is contained in the following lines :—

> Ay me ! How many evils do enfold
> The righteous man to make him daily fall
> Were not that Heavenly Grace doth him uphold.

4. What did Marlowe do towards the development of the English Drama? What are the chief features of his style? Give a list of his works, with dates.

5. What are the most notable characteristics of Lyly's plays? How did he influence Shakspere?

6. Compare the earlier comedies of Shakspere with his later ones, illustrating your answer by references to the contents of the plays themselves.

7. What did Ben Jonson mean by the title "Every Man in his Humour?" Illustrate if you can by references to the play.

8. Give a list of the chief writers of Prose Romances during Elizabeth's reign; mention their chief works. Criticise either "Euphues" or Sidney's "Arcadia."

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9. (To be answered very briefly)—

(I.) Fix the following quotations :—

(*a*) His withered fist still knocking at death's door.

(*b*) Good wine needs no bush.

(*c*) . . . . gives to airy nothing
A local habitation and a name.

(*d*) Cut is the branch that might have grown full straight
And burned is Apollo's laurel bough.

(*e*) Care—charmer Sleep ! Son of the Sable Night
Brother to Death, in silent darkness born.

(II.) In what connection do the following names occur in English Literature :—Sir Andrew Aguecheek, Diccon the Bedlam, The Fair Maid of Fressingfield, Master Matthew, King Basilius.

(III.) Mention the author and state very briefly the nature of each of the following works :—The Dial of Princes, The School of Abuse, Hero and Leander, Mortimeriados, A Looking Glass for London and England.

SUBJECTS FOR COMPOSITION.

(Only one to be chosen.)

(1) The artistic methods of Shakspere and George Eliot compared and contrasted.

(2) Miranda and Cordelia considered as characters representative of two different periods of Shakspere's authorship.

(3) Tito Melema.

(4) George Eliot's delineations of women.

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ANNUAL EXAMINATION.

PURE MATHEMATICS.

PAPER A.—GEOMETRY AND TRIGONOMETRY.

Examiner: Professor H. W. Segar, M.A.

N.B.—*For a Pass only, questions marked with an asterisk need not be attempted.*

I.

1. Shew that the angles, which one straight line makes with another straight line on one side of it, are either two right angles or are together equal to two right angles; and, if at a point in a straight line, two other straight lines, on opposite sides of it, make adjacent angles together equal to two right angles, these two straight lines are colinear.

2. If through E, the middle point of the side AB of a triangle, EF be drawn parallel to BC and cutting AC in F, shew that F is the middle point of AC.

3. Shew that, in a triangle, the square on any side is greater than or less than the sum of the squares on the other two sides, by twice the rectangle contained by either of these sides and the projection of the other upon it, according to whether the angle contained by these sides is obtuse or acute.

What other case might be included in this proposition?

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ANNUAL EXAMINATION.

4. Shew that the sum of the squares on the sides of a quadrilateral is equal to the sum of the squares on the diagonals, together with four times the square on the line joining the middle points of the diagonals.

5. *Shew how to divide a given straight line into two parts, so that the square on one part shall be equal to twice the rectangle contained by the whole and the other part.

6. Shew that chords of a circle and their distances from the centre are in inverse orders of magnitude.

7. Shew that two parallel tangents to a circle intercept on any third tangent a segment which subtends a right angle at the centre.

8. *Prove that if a triangle XYZ, equiangular with a given triangle, be inscribed in a given triangle ABC, the circumcircles of the triangles AYZ, BZX, CXY will intersect in a fixed point.

9. Shew how to circumscribe a square about a given circle.

10. Shew that if two triangles, or any other two rectilinear figures, be similar, the ratio of their areas is equal to the duplicate ratio of their homologous sides.

11. Shew that the locus of a point, the ratio of whose distances from two given points is equal to a given ratio, is a circle.

II.

1. Shew that the circumference of a circle varies as its radius, and hence that the radian is an angle of invariable magnitude.

   Calculate π to 2 decimal places, on the assumption that an angle of 200° at the centre of a circle subtends an arc of $3\frac{1}{2}$ radii.

2. Find the trigonometric functions of an angle of 30°.

3. Shew how to find the height of an object, standing on a horizontal plane, when the base of the object is inaccessible.

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4. Prove the relations—

(i.) $cosec^2 A = 1 + cot^2 A$;

(ii.) $tan^{-1} x = cosec^{-1} \frac{\sqrt{1+x^2}}{x}$;

(iii.) $Sin^{-1} x = n\pi + (-1)^n sin^{-1} x$;

(iv.) $cos(A + B) = cos A \, cos B - sin A \, sin B$;

(v.) $tan \frac{A-B}{2} = \frac{a-b}{a+b} cot \frac{C}{2}$.

5. Establish the identities—

(i.) $\frac{sin 2A}{sin A} - \frac{cos 2A}{cos A} = sec A$;

(ii.) $sin^2\left(\frac{\pi}{8} + \frac{\theta}{2}\right) - sin^2\left(\frac{\pi}{8} - \frac{\theta}{2}\right) = \frac{1}{\sqrt{2}} sin \theta$;

(iii.) $sin A + sin B + sin C = 4 cos \frac{A}{2} cos \frac{B}{2} cos \frac{C}{2}$,

where A, B, C are the angles of a triangle.

6. Solve the triangle having $A = 52° 38' 0''$, $b = 45$, $B = 90°$; given

$log 45 = 1{\cdot}65321$, $\quad L\,sin\, 52° 38' = 9{\cdot}90024$,

$log 27{\cdot}311 = 1{\cdot}43634$, $\quad L\,cos\, 52° 38' = 9{\cdot}78313$.

$log 35{\cdot}765 = 1{\cdot}55346$,

7. Solve the equation—

$$2(1 + tan \theta) = (1 - tan \theta) sec 2\theta.$$

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8. *An equilateral triangle ABC, whose area is denoted by Δ, is divided into two triangles by a line drawn through A; the perpendicular distances, from this line, of B and C are p and q respectively; shew that

$$p^2 + pq + q^2 = \Delta \sqrt{3}.$$

9. *If x is the circular measure of a very small angle, shew that

$$\sin(A + x) = \sin A + x \cos A,$$

nearly; and obtain a similar expression for

$$\cos(A + x).$$

Hence, shew that

$$\frac{\sin(A + x) - \sin A}{\cos A - \cos(A + x)} = \cot A,$$

nearly.

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ANNUAL EXAMINATION.

PURE MATHEMATICS.

PAPER B.—ALGEBRA.

Examiner: PROFESSOR H. W. SEGAR, M.A.

N.B.—*For a Pass only, questions marked with an asterisk need not be attempted.*

1. (i.) Prove $pq = qp$, and $xpq = xqp$, where x, p, q represent integers

(ii.) Find the maximum value when a is negative, and the minimum value when a is positive, of $ax^2 + bx + c$, x being supposed always real.

(iii.) Prove generally—

$$(a^m)^n = a^{mn}.$$

(iv.) Prove that if $\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \ldots\ldots$, then each of these ratios $= \left(\frac{pa^n + qc^n + re^n + \ldots\ldots}{pb^n + qd^n + rf^n + \ldots\ldots}\right)^{\frac{1}{n}}$.

(v.) Shew that the A.M. of two unequal positive quantities, their positive G.M., and their H.M. are in descending order of magnitude.

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(vi.) Shew that the characteristic of the logarithm of any number is equal to the number of places the first digit of the number is away from the units place.

(vii.) Find the total number of combinations of n different things taken any number at a time.

2. Simplify—

(i.) $$\frac{\frac{1}{ca}+\frac{1}{ab}-\frac{1}{bc}}{(b+c)^2-a^2}+\frac{\frac{1}{ab}+\frac{1}{bc}-\frac{1}{ca}}{(a+c)^2-b^2}+\frac{\frac{1}{bc}+\frac{1}{ca}-\frac{1}{ab}}{(a+b)^2-c^2};$$

(ii.) $$\frac{2\sqrt{3}(1+\sqrt{3}+\sqrt{6})}{(\sqrt{2}+\sqrt{3})(\sqrt{3}+\sqrt{6})(\sqrt{6}+\sqrt{2})}.$$

3. Solve the equations—

(i.) $$\frac{x^2+2x-2}{x-1}+\frac{x^2-2x-2}{x+1}=\frac{2x^2-6x+2}{x-3};$$

(ii.) $$\left.\begin{aligned} x^2y+xy^2&=180,\\ x^3+y^3&=189. \end{aligned}\right\}$$

4. A number consists of three digits whose sum is 6. If the digits be reversed the number is increased by 99. The sum of the squares of the digits is 14. Find the number.

5. If the roots of the equation $x^2+px+q=0$ be $\alpha \pm \sqrt{\beta}$, shew that the equation whose roots are $\frac{1}{\alpha} \pm \frac{1}{\sqrt{\beta}}$ is

$$(p^2-4q)(p^2x^2+4px)=16q.$$

6. How many words containing two vowels and three consonants can be formed out of 21 consonants and 5 vowels? How many will there be if the vowels are to occupy the even places?

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7. (i.) What term of $(1-x)^{\frac{1}{2}}$ is equal to $\frac{1}{13}$ of the same term of $(1+x)^{-\frac{1}{2}}$?

(ii.) Find the general term of $\frac{1+x}{(1-x)^3}$.

8. *Expand to five terms $\frac{3-2x}{1-3x+2x^2}$, by first resolving into partial fractions. Find the *n th.* term of the series.

9. *Sum to n terms the series—

$$2.3 + 3.4 + 4.5 + \ldots\ldots$$

10. *Prove that if

$$X = ax + cy + bz,\ Y = cx + by + az,\ Z = bx + ay + cz,$$

then

$$(a^3+b^3+c^3-3abc)(x^3+y^3+z^3-3xyz) = X^3+Y^3+Z^3-3XYZ.$$

11. *Prove that

$$xyz > (y+z-x)(z+x-y)(x+y-z),$$

all the factors being positive.

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XXXV.

ANNUAL EXAMINATION.

APPLIED MATHEMATICS.

Examiner: PROFESSOR H. W. SEGAR, M.A.

(N.B.—For a Pass only, questions marked with an asterisk need not be attempted.)

1. (*a.*) Give an account of how the relation $F = ma$ is obtained.

   (*b.*) Prove the *parallelogram of velocities.*

2. A ship sailing North-east through a current running four miles an hour, finds after two hours she has made good four miles South-east; determine the direction of the current and the speed of the ship.

3. A projectile of $\frac{1}{2}$oz. is started vertically upwards with the velocity 128 feet per second and arrives at a point 16 feet higher with the velocity 64 feet per second; what is the average resistance of the air?

4. *Prove that when two heavy particles are projected in the same vertical plane from two fixed points with equal velocities so that they collide, the sum of their angles of projection must be constant.

5. (*a.*) State and prove the *Triangle of Forces.*

   (*b.*) Find the resultant of Two Parallel Forces, and discuss the case when the forces are unlike and equal.

   (*c.*) Find the C G of a triangular lamina, and shew that it coincides with that of three equal weights acting at the angular points.

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(*d.*) Shew how to construct graphically the resultant of any number of co-planar forces, indicating any particular cases that may arise.

6. If the resultant R of the two forces P and Q, inclined to each other at any given angle, make the angle θ with P, prove that the resultant of the forces (P + R) and Q, at the same angle, makes the angle $\frac{1}{2}\theta$ with (P + R).

7. ABC is a triangle; AE, BF, CD are lines drawn from the angles to the points of bi-section of the opposite sides; prove that forces represented by AE, BF, CD are in equilibrium.

8. Shew that the least force which will move a weight W along a rough horizontal plane is W *sin* ϕ, where ϕ is the limiting angle of resistance.

9. *A uniform ladder rests between a vertical wall and the horizontal ground, both being rough; the co-efficient of friction for the ladder and wall is $\frac{1}{3}$, and for the ladder and ground $\frac{3}{7}$; find the angle which the ladder makes with the ground when it is just on the point of sliding.

10. (*a.*) Explain how fluid pressure is measured, and establish the equality of pressure in all directions at the same point.

(*b.*) Shew how to find the whole pressure on any surface immersed in a liquid.

(*c.*) Describe the experimental proof of Boyle's Law.

11. Down one arm of a U-tube containing water is poured some olive oil, and the free surfaces of the water and the oil are noticed to be 69 and 75 centimetres respectively above the common surface. Turpentine is then poured into the other arm until its free surface is at the same level as the olive oil, and the depth of the turpentine is found to be 50 centimetres. Determine the densities with respect to water of olive oil and turpentine.

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12. The height of a cylindrical diving-bell is 12 feet, and the area of its base is 64 square feet. The water barometer stands at 35 feet 5 inches, and the temperature of the water is the same as that of the atmosphere. Find the least weight of the bell that it may sink to rest upon the bottom of a harbour 56 feet 7 inches deep, assuming that a cubic foot of water weights 1,000oz.

13. *A triangular lamina ABC, right-angled at C, floats in a liquid of $\frac{8}{3}$ of its own density, is hinged freely at C to a point fixed below the surface, and has AB entirely out of the liquid. If CA makes an angle of 30° with the horizon, and CB is bisected by the surface of the liquid, prove that the lengths of CA and CB are to one another as $2 : \sqrt{3}$.

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ANNUAL EXAMINATION.

CHEMISTRY.

Examiner : PROFESSOR BROWN.

1. How would you prove by experiment that ammonia gas contains both nitrogen and hydrogen, and how would you show that the combination obeys the law of gaseous volumes?

2. Give a brief account of the element fluorine, and explain how you would recognise its presence in a mineral.

3. How is sulphur dioxide prepared? Give instances of the reducing action of this substance.

4. Describe experiments which tend to prove that the luminosity of a flame is due to the presence of solid particles within it. What part is acetylene supposed to play in this connection?

5. Elements, the atomic weights of which are nearly equal, often present many points of similarity. In what respects can this be said to apply to antimony and tin and their compounds?

6. By what methods is caustic soda obtained industrially? How would you ascertain whether a sample of caustic soda is free from carbonate, and from sulphate?

7. How would you convert calcium sulphate into calcium carbonate and cupric sulphate into cupric nitrate?

8. Give the formulæ of the several oxides of lead and describe the preparation of each of these substances.

9. Mention the chief ores of silver. What is their composition and how may they be distinguished from each other? By what methods may silver be separated from lead?

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ANNUAL EXAMINATION.

ADVANCED CHEMISTRY.

Examiner:—Professor Brown.

1. Describe Hofmann's method of determining the vapour density of a substance, and make a careful statement of the calculations required in order to obtain an accurate result.

2. The molecules of phosphorus vapour contain four atoms; those of mercury and argon contain only one atom. Explain the nature of the evidence upon which these statements are based.

3. Prove that in a perfect gas maintained at a constant temperature, the product of the pressure by the volume must always remain the same.

4. What is dissociation? Give examples and explain how the amount of dissociation of a gas may be calculated.

5. What do you understand by the term "osmotic pressure"? How may this pressure be measured? How has it been shown that the osmotic pressure of a dissolved substance is analogous to the pressure of a gas?

6. Compare the compositions and properties of the chlorides of the elements from the point of view of the law of periodicity.

7. What was the phlogistic theory, and how was it finally overthrown?

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ANNUAL EXAMINATION.

BIOLOGY.

Examiner: PROFESSOR A. P. W. THOMAS.

Medical Students may attempt questions in Sections I., II., and IV., but must not take more than eight questions altogether, nor more than three in any one Section.

All answers to be illustrated with diagrams wherever possible.

I.—GENERAL BIOLOGY.

1. What are the essential points of resemblance between the animal and vegetable cell? What are the principal differences? What do you know as to the origin of cells in plants and animals?

2. What is the general character of the function of excretion in animals, and what are the chief excretory products? What do you know of excretion in plants?

3. Compare and contrast Spirogyra, Yeast, and Vorticella, with regard to (*a*) structure (*b*) nutrition.

4. What do you understand by the recapitulation theory, and to what limitations is it subject? Apply it briefly to the development of the frog.

II.—JUNIOR BOTANY.

1. What is cambium, and where is it situated in a dicotyledon? What structures does it give rise to and how are they formed?

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2. Show how nutrition is effected in one of the higher plants. Illustrate your answer with a brief account of the experimental evidence.

3. Give a full account of the gynoecium (including the structure of the ovule) in some flowering plant (to be named), and describe the process of fertilisation What evidence have we of the morphological nature of a carpel?

4. Give an account of the structure of the flower in an orchid (to be named), and explain how pollination is effected.

B.

For Students taking JUNIOR BOTANY *only.*

5. Give an account of the structure of the foliage leaf in a dicotyledon. Describe the development and function of the stomata.

6. Explain the usual structure of flower and fruit in the Umbelliferae, and explain the biological significance of characteristic features of the order.

7. Give a comparative account of the structure of the fruits in the Rosaceae.

III.—SENIOR BOTANY.

1. Describe fully the reproductive organs in Marchantia. In what respects is the sporogonium of Polytrichun more highly differentiated than that of Marchantia.

2. Describe the development of the spores in an Angiosperm. How do they differ from those of a fern?

3. Compare the growing points of Nitella, a Fern, and Angiosperm, and briefly trace the development of the mature shoots from their respective growing points.

4. Give some account of the reserve substances stored in seeds and bulbs. Account for their presence in the parts referred to, and comment upon their physiological importance.

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ANNUAL EXAMINATION.

IV.—Zoology.

1. Describe the characters of the coelom in the earthworm, anodon and rabbit.

2. Compare and contrast the central nervous system in the earthworm and Amphioxus as regards adult structure and development.

3. What are the principal differences between a dog-fish and a frog? What reasons would lead you to class these two forms in the same great group?

4. What is meant by the term germinal layers, and to what parts do they respectively give rise in the chick?

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ANNUAL EXAMINATION.

GEOLOGY

Examiner: PROFESSOR A. P. W. THOMAS.

(Illustrate your answers with diagrams wherever possible.)

1. Describe the structure you would expect to find in a Hornblende Granite, and the character of the constituent minerals. State the degree of symmetry presented by perfect crystals of the essential minerals and the forms they commonly assume.

2. What do you understand by local metamorphism? What may it be due to? Describe the changes produced in rocks of common occurence.

3. What are volcanic tuffs? How would you distinguish them from (*a*) lavas, (*b*) ordinary sediments?

4. Give some account of the geological structures commonly seen in great mountain ranges, and account for their production. How is it possible to ascertain the age of a mountain range? Illustrate your answer with sections.

5. What do you know of the character, distribution, and fossil contents of Siluro-Devonian rocks in New Zealand?

6. Give some account of the character of the Waitemata beds as they occur near Auckland. What is their relation to rocks of the next under-lying system in the district?

7. Describe briefly the most characteristic plants of the Carboniferous coal-measures, and name the living plants to

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which they are allied. What evidence have we of the mode of origin of coal? What do you know as to the age of coal-deposits in New Zealand?

8. Give the most characteristic features of the following fossils, refer them to their respective classes, and state their range in time:—Calymene, Belemnites, Archæopteryx, Lithostrotion, Cephalaspis, Inoceramus, Pterodactylus.

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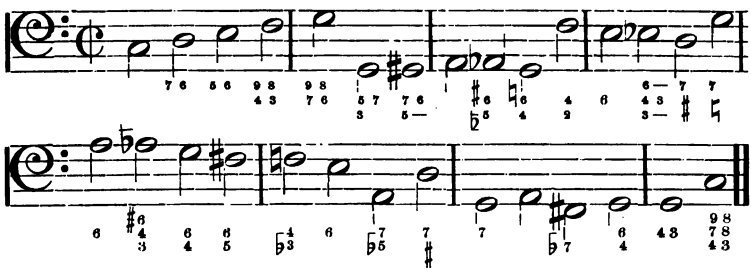
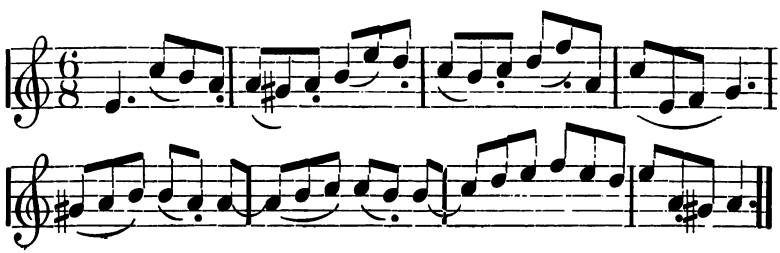
SCHOOL OF MUSIC—ADVANCED DIVISION.

Examiner: Dr. W. E. Thomas.

Time allowed: Three hours.

1. Harmonise in four parts:—

2. Harmonise in four parts for two Violins, Viola, and 'Cello (in full score):—

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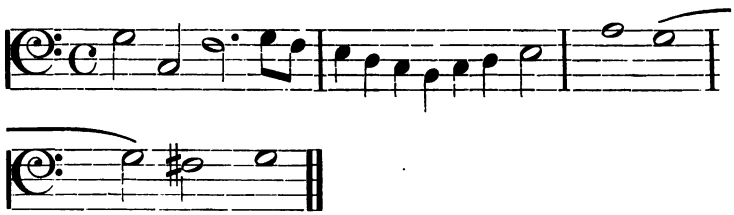
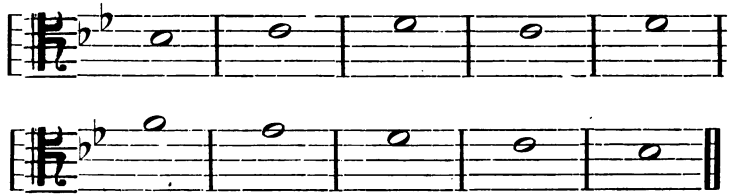
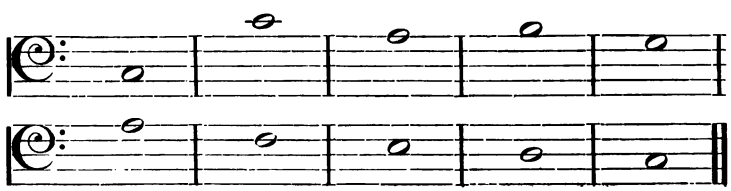
ANNUAL EXAMINATION.

3. Write a Canon in two parts (about eight bars).

4. Give an outline of Sonata Form, giving instances of 1st and 2nd subjects from any classical composer.

5. Define a Fugue, and give principal parts.

6. To the following fugue subject give tonal answer, and write a countersubject in Double Counterpoint at the octave to the answer :—

7. Add three parts, note against note, to the following C.F. (open score) :—

8. Write a fifth species above the following C.F. :—

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9. State what you know of the Church modes, and by whom were the first eight invented.

10. Who was John of Fornsete, and what did he compose? State what you know of the composition.

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ANNUAL EXAMINATION.

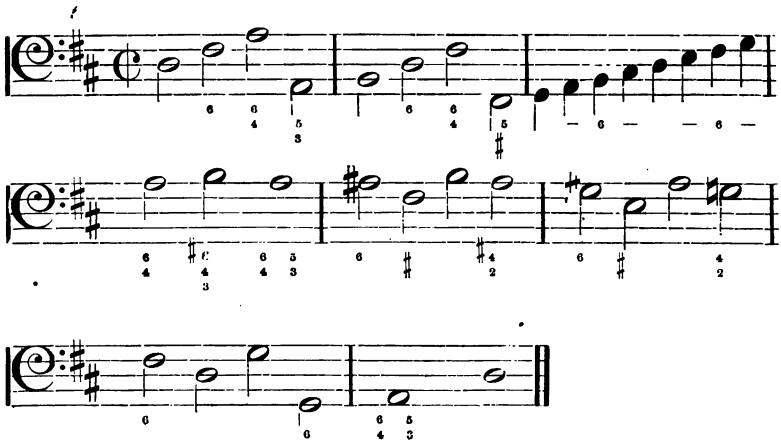
SCHOOL OF MUSIC.—INTERMEDIATE DIVISION.

Examiner: Dr. W. E. Thomas.

Time allowed: Three Hours.

1. Give an example of a perfect cadence, an imperfect cadence, and a modulation.

2. Give examples of passing notes, an appogiatura, an acciaccatura, a turn, a shake, a mordent.

3. Harmonise in four parts :—

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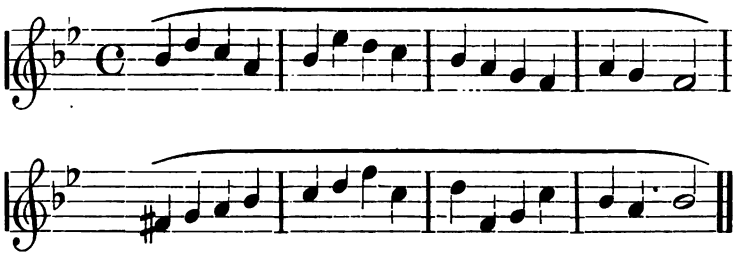
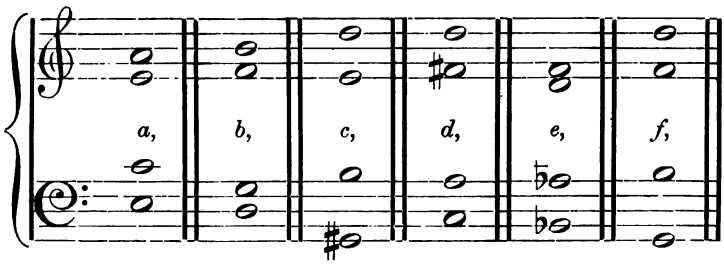
4. Harmonise the following melody in four parts, using common chords and their inversions only :—

5. Name the following chords, and resolve them :—



6. What is double counterpoint? Give a short example of it.

7. What is a canon? Name any well-known example.

8. State what you know of Sonata Form, and mention an example of Rondo Form in any classical work you know.

9. Who were the following:—St. Ambrose, Gregory, Hucbald, Franco, Guido? Give a brief account of their work.

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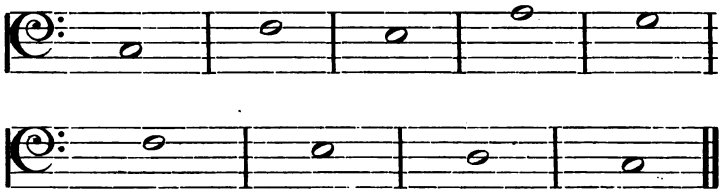
ANNUAL EXAMINATION.

10. On the following C. F. write two parts above in 1st species :

11. Transpose No. 10 into G, place it in the treble clef, and add a counterpoint in the 3rd species below.

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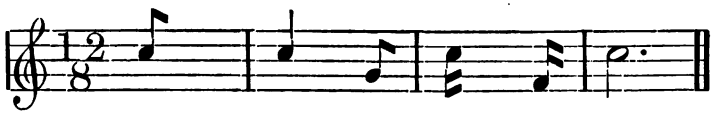
ANNUAL EXAMINATION.

SCHOOL OF MUSIC.—JUNIOR DIVISION.

Examiner: Dr. W. E. Thomas.

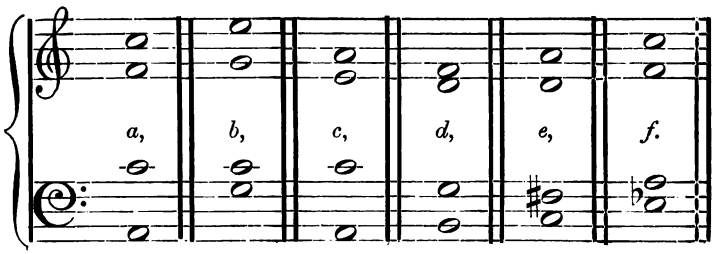
Time allowed: Three Hours.

1. Give the following intervals over E♭:—Major 3rd, perfect 4th, imperfect 5th, augmented 6th, diminished 7th, and major 7th.

2. Fill in with rests :—

3. Write the chromatic scale of C, ascending; melodic minor of G, descending; and the harmonic minor of D, both ascending and descending.

4. Give a common chord on each of the following :—Tonic, dominant, sub-dominant, mediant, supertonic, and relative minor.

5. Name the following chord, and state inversions of each where necessary :—



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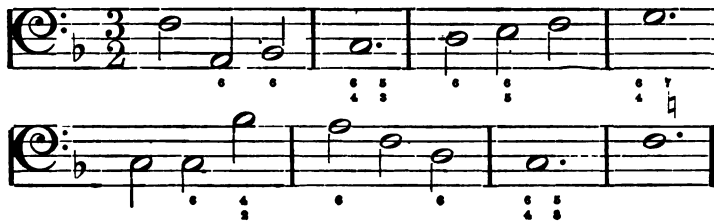
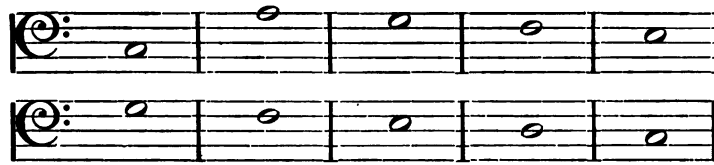
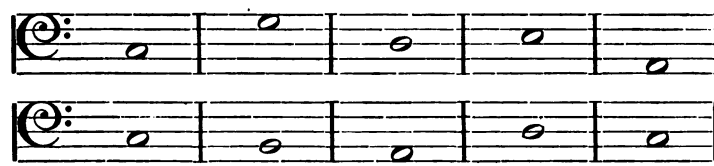
6. Harmonise in four parts :

7. To the following C. F. add a 1st species above :—

8. Add a 4th species above; the syncopation must be continuous :—

9. Define a passing note, sequence, transposition, and modulation, and give examples of the first three.

10. What is counterpoint, and who invented it? State what you know of the earliest system.

11. Write out the Dorian and Æolian Church modes.

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FRENCH (PASS EXAMINATION).

Examiner: E. DE MONTALK, B-ès L., Officier d' Académie, etc.

1. Translate into English :—

Ami, n'accable point un malheureux qui t'aime :
T'ai-je jamais caché mon cœur et mes désirs ?
Tu vis naître ma flamme et mes premiers soupirs :
Enfin, quand Ménélas disposa de sa fille
En faveur de Pyrrhus, vengeur de sa famille,
Tu vis mon désespoir ; et tu m'as vu depuis
Traîner de mers en mers ma chaîne et mes ennuis.
Je te vis à regret, en cet état funeste,
Prêt à suivre partout le déplorable Oreste,
Toujours de ma fureur interrompre le cours,
Et de moi-même enfin me sauver tous les jours.
Mais, quand je me souvins que, parmi tant d'alarmes,
Hermione à Pyrrhus prodiguait tous ses charmes,
Tu sais de quel courroux mon cœur alors épris,
Voulut en l'oubliant punir tous ses mépris.
Je fis croire et je crus ma victoire certaine ;
Je pris tous mes transports pour des transports de haine
Détestant ses rigueurs, rabaissant ses attraits,
Je défiais ses yeux de me troubler jamais.
Voilà comme je crus étouffer ma tendresse.
En ce calme trompeur j'arrivai dans la Grèce ;
Et je trouvai d'abord ses princes rassemblés,
Qu'un péril assez grand semblait avoir troublés.
J'y courus. Je pensai que la guerre et la gloire
De soins plus importants rempliraient ma mémoire :
Que, mes sens reprenant leur première vigueur,
L'amour achèverait de sortir de mon cœur.
Mais admire avec moi le sort, dont la poursuite
Me fait courir alors au piége que j'évite.
J'entends de tous côtés qu'on menace Pyrrhus :
Toute la Grèce éclate en murmures confus :

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On se plaint qu'oubliant son sang et sa promesse
Il élève en sa cour l'ennemi de la Grèce,
Astyanax, d'Hector jeune et malheureux fils,
Reste de tant de rois sous Troie ensevelis.
J'apprends que pour ravir son enfance au supplice
Andromaque trompa l'ingénieux Ulysse,
Tandis qu'un autre enfant arraché de ses bras,
Sous le nom de son fils fut conduit au trépas.
On dit que, peu sensible aux charmes d'Hermione,
Mon rival porte ailleurs son cœur et sa couronne.
Ménélas, sans le croire, en paraît affligé,
Et se plaint d'un hymen si longtemps négligé.

2. Give an idea of the plot of *Andromaque.*

3. Translate into English :—

O mon fils ! de ce nom j'ose encor vous nommer,
Souffrez cette tendresse, et pardonnez aux larmes
Que m'arrachent pour vous de trop justes alarmes ;
Loin du trône nourri, de ce fatal honneur,
Hélas ! vous ignorez le charme empoisonneur :
De l'absolu pouvoir vous ignorez l'ivresse,
Et des lâches flatteurs la voix enchanteresse.
Bientôt ils vous diront que les plus saintes lois
Maîtresses du vil peuple, obéissent aux rois ;
Qu'un roi n'a d'autre frein que sa volonté même :
Qu'il doit immoler tout à sa grandeur suprême ;
Qu'aux larmes, au travail le peuple est condamné,
Et d'un sceptre de fer veut être gouverné :
Que, s'il n'est opprimé, tôt ou tard il opprime
Ainsi de piége en piége, et d'abîme en abîme,
Corrompant de vos mœurs l aimable pureté,
Ils vous feront enfin haïr la vérité,
Vous peindront la vertu sous une affreuse image.
Hélas ! ils ont des rois égaré le plus sage.
Promettez sur ce livre, et devant ces témoins,
Que Dieu sera toujours le premier de vos soins :
Que, sévère aux méchants, et des bons le refuge,
Entre le pauvre et vous vous prendrez Dieu pour juge :

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Vous souvenant, mon fils, que, caché sous ce lin,
Comme eux vous fûtes pauvre, et comme eux orphelin.

4. Comment on the apparent syntactical mistake contained in the three last lines.

5. Under what peculiar circumstances was *Athalie* written?

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FRENCH (PASS EXAMINATION).

GRAMMAR AND PHILOLOGY.

Examiner: E. DE MONTALK, B-ès-L., Officier d' Académie, etc.

1. To what kind of *Métaplasmes* belong the following words:—

   Cossu, je voi, faon, cigüe, grenouille, Septembre, avecque, vetement, estimer.

2. In the Sixteenth Century *v* and *j* were distinguished from *u* and *i*. How were the new letters called?

3. How do you account for the mood of the verbs in italics in the following:—

   Croyez-vous que je *sois* capable de vous aider.

   Croyez-vous que je *suis* capable de faire celà.

   Les alliés ignoraient qu'un abus de la force en *avait tari* la source.

   Faites-lui voir cette lettre, si vous trouvez qu'elle en *vaille* la peine.

   Si vous trouvez que j' *ai* fait mon devoir, payez-moi.

4. "The Latin tongue possessed the faculty of creating substantives out of its past participles." Show that the same thing can be done in French.

5. Derive from the Latin the pronouns *moi, en, mien, autrui, lui, plusieurs.*

6. Explain the etymological origin—

   a. Of the inserted t in *parla-t-il.*

   b. Of the peculiar form of the adjective in *grand'mère.*

   c. Of the twofold gender of *amour.*

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ANNUAL EXAMINATION.

7. Translate into French, by idiomatic uses of *faire*—

Don't be childish.
You frightened me.
He pretends to be deaf.
Let us take a turn in the garden.
He will get accustomed to it.

8. What traces remain of Old French cardinal numerals?

9. Write a short Essay on the *Syntaxe du participe passé.*

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FRENCH (PASS EXAMINATION).

COMPOSITION AND LITERATURE.

Examiner: E. DE MONTALK, B-ès-L., Officier d' Académie, etc.

1. Translate into French :—

"Almost at the same time as the engagement of Montebello, Garibaldi, with his diminutive army (which through the weeding out of men unfit for service was reduced to about 3,500 before it took the field), crossed the Lago Maggiore, and advanced boldly into the heart of the enemy's country. The volunteers had no artillery, and by way of cavalry only some 40 or 50 were mounted on their own horses, and dignified with the name of 'guides.' They were badly armed and worse equipped; the only good thing they had was an excellent ambulance organised by Dr. Bertani, Garibaldi's surgeon-general from Roman days downwards. But they formed a picturesque sight as they marched along gaily to the everlasting song, 'Addio, mia bella, addio;' and a physiognomist would have been struck by their intelligent and often distinguished faces; nobles and poets, budding doctors and lawyers, bristled in the ranks, while the officers were the still young veterans of 1848-1849: Cosenz, hero of Venice; Medici, the defender of the Vascello; Bixio, Sirtori, Cairoli—all the Knights of the Legend.

"Moving swiftly from place to place, and appearing where and when he was least expected, Garibaldi took the entire country of the Lombard lakes. Gyulai, who at first looked upon the Garibaldian march as a simple diversion intended to draw off his attention, now became concerned, and dispatched Urban with 10,000 men to destroy the volunteers, and stem the insurrection which everywhere followed in their wake. On the 27th of May, Garibaldi drove Urban from his position near San Fermo, and that

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commander had his mission still unfulfilled when he received the order to retreat after the battle of Magenta. The volunteers were free to pursue their way to Brescia and the Valtellina, where they performed many feats in the latter period of the war, winning the admiration of Hayn, the Austrian general opposed to them, which he was generous enough to express in no measured terms."

2. Translate also: —

Last week.
It is very windy.
In many respects.
At sunset.
Every other day.
To-night, at eleven.
That depends.
No admittance.
Rome was not built in a day.
Misfortunes never come singly.

3. Who are the authors of *De l'Institution Chrétienne, La première Semaine, Recherches sur la France, Introduction à la vie dévote, De la Servitude volontaire, L'Heptaméron, Vie des dames illustres, Discours politiques et militaires, Amadis des Gaules, Le Con temps?*

4. Name the poets of *La Pléiade de Ronsard.*

5. Write, in French, a short Essay on *La Satire Ménippée.*

6. What do you know of Rabelais, Montaigne, Amyot, Clément Marot, and Mellin de Saint Gelais?

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ANNUAL EXAMINATION.

GERMAN (PASS EXAMINATION).

Examiner : E. DE MONTALK, B-ès-L., Officier d' Académie, etc.

1. Translate into English—

ACHTER AUFTRITT.

JUST. v. TELLHEIM.

v. Tellheim.—Bist du da?

Just (indem er sich die Augen wischt).—Ja!

v. Tellheim.—Du hast geweint?

Just.—Ich habe in der Küche meine Rechnung geschrieben, und die Küche ist voll Rauch. Hier ist sie, mein Herr!

v. Tellheim.—Gieb her.

Just.—Haben Sie Barmherzigheit mit mir, mein Herr. Ich weisz wohl, dasz die Menschen mit Ihnen keine haben; aber—

v. Tellheim.—Was willst du?

Just.—Ich hätte mir eher den Tod als meinen Abschied vermuthet.

v. Tellheim.—Ich kann dich nicht länger brauchen; ich musz mich ohne Bedienten behelfen lernen. (Schlägt die Rechnung auf und liest.) "Was der Herr Major mir schuldig: Drei und einen halben Monat Lohn, den Monat 6 Thaler, macht 21 Thaler. Seit dem ersten dieses an Kleinigkeiten ausgelegt 1 Thlr. 7 Gr. 9 Pf. Summa Summarum 22 Thlr. 7 Gr. 9 Pf." Gut, und es ist billig, dasz ich diesen laufenden Monat ganz bezahle.

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Auch gut, dachte ich. Der Pudel kam mir nach, aber ich bin kein Liebhaber von Pudeln. Ich jagte ihn fort, umsonst; ich prügelte ihn von mir, umsonst. Ich liesz ihn des Nachts nicht in meine Kammer, er blieb vor der Thüre auf der Schwelle. Wo er mir zu nahe kam, stiesz ich ihn mit dem Fusze; er schrie, sah mich an und wedelte mit dem Schwanze. Noch hat er keinen Bissen Brod aus meiner Hand bekommen, und doch bin ich der einzige, dem er hört und der ihn anrühren darf. Er springt vor mir her und macht mir seine Künste unbefohlen vor. Es ist ein häszlicher Pudel, aber ein gar zu guter Hund. Wenn er es länger treibt, so höre ich endlich auf, den Pudeln gram zu seyn.

v. Tellheim (bei Seite).—So wie ich ihm! Nein, es giebt keine völlige Unmenschen! — — Just, wir bleiben beisammen.

Just.—Ganz gewisz! — Sie wollten sich ohne Bedienten behelfen? Sie vergessen Ihrer Blessuren und dasz Sie nur eines Armes mächtig sind. Sie können sich ja nicht allein ankleiden. Ich bin Ihnen unentbehrlich, und bin — — ohne mich selbst zu rühmen, Herr Major — und bin ein Bedienter, der — wenn das Schlimmste zum Schlimmen kommt — für seinen Herrn betteln und stehlen kann.

v. Tellheim.—Just, wir bleiben nicht beisammen.

Just.—Schon gut!

2. Translate also—

Es war ein König in Thule
Gar treu bis an das Grab,
Dem sterbend seine Buhle
Einen goldnen Becher gab.

Es ging ihm nichts darüber
Er leert' ihn jeden Schmaus
Die Augen gingen ihm über
So oft er trank daraus.

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Just.—Die andere Seite, Herr Major.

v. Tellheim.—Noch mehr? (Liest.) "Was dem Herrn Major ich schuldig: An den Feldscheer für mich bezahlt 25 Thlr. Für Wartung und Pflege während meiner Kur, für mich bezahlt, 39 Thlr. Meinem abgebrannten und geplünderten Vater auf meine Bitte vorgeschossen, ohne die zwei Beutepferde zu rechnen, die er ihm geschenkt, 50 Thlr. Summa Summarum 114 Thlr. Davon abgezogen vorstehende 22 Thlr. 7 Gr. 9 Pf. Bleibe dem Herrn Major schuldig 91 Thlr. 16 Gr. 3 Pf." Kerl, du bist toll!

Just.—Ich glaube es gern, dasz ich Ihnen weit mehr koste. Aber es wäre verlorne Dinte, es dazu zu schreiben. Ich kann Ihnen das nicht bezahlen; und wenn Sie mir vollends die Liverei nehmen, die ich auch noch nicht verdient habe, —so wollte ich lieber, Sie hätten mich in dem Lazarethe krepiren lassen.

v. Tellheim.—Wofür siehst du mich an? Du bist mir nichts schuldig, und ich will dich einem von meinen Bekannten empfehlen, bei dem du es besser haben sollst, als bei mir.

Just.—Ich bin Ihnen nichts schuldig, und doch wollen Sie mich verstoszen?

v. Tellheim.—Weil ich dir nichts schuldig werden will.

Just.—Darum! nur darum?—So gewisz ich Ihnen schuldig bin, so gewisz Sie mir nichts schuldig werden können, so gewisz sollen Sie mich nun nicht verstoszen.—Machen Sie, was Sie wollen, Herr Major, ich bleibe bei Ihnen; ich musz bei Ihnen bleiben.—

v. Tellheim.—Und deine Hartnäckigkeit, dein Trotz, dein wildes ungestümes Wesen gegen alle, von denen du meinst, dasz sie dir nichts zu sagen haben, deine tückische Schadenfreude, deine Rachsucht — —

Just.—Machen Sie mich so schlimm wie Sie wollen, ich will darum doch nicht schlechter von mir denken, als von meinem Hunde. Vorigen Winter ging ich in der Dämmerung an dem Kanale und hörte etwas winseln. Ich stieg herab und griff nach der Stimme, und glaubte ein Kind zu retten und zog einen Pudel aus dem Wasser,

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ANNUAL EXAMINATION.

Und als er kam zu sterben
Zählt' er seine Städt' im Reich,
Gönnt' alles seinem Erben
Den Becher nicht zugleich.

Er sasz beim Königsmahle
Die Ritter um ihn her,
Auf hohem Vätersaale,
Dort auf dem Schloss am Meer.

Dort stand der alte Zecher
Trank letzte Lebensglut
Und warf den heiligen Becher
Hinunter in die Flut.

Er sah ihn stürzen, trinken
Und sinken tief ins Meer,
Die Augen thäten ihm sinken
Trank nie einen Tropfen mehr.

3. Translate also—

Wie kommt das schöne Kästchen hier herein?
Ich schloss doch ganz gewiss den schrein.
Es ist doch wunderbar! Was mag wohl drinne sein.
Vielleicht bracht's jemand als ein pfand.

Und meine Mutter lieh darauf.
Da hängt ein Schlüsselchen am Band
Ich denke wohl, ich mach! es auf!
Was ist das? Gott im Himmel! Schau,
So was hab' ich meine Tage nicht gesehn!

Ein Schmuck! Mit dem könnt eine Edelfran
Am höchsten Feiertage gehn.
Wie soltte mir die Kette stehn?
Wem mag die Herrlichkeit gehören?
Wenn nur die Ohrring! meine wären!
Man sieht doch gleich ganz anders drein.

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Was hilft euch Schonheit, junges Blut?
Das ist wohl alles schön und gut,
Allein mein lässt's auch alles sein;
Man lobt euch halb mit Erbarmen.
Nach Golde drängt
Am Golde hängt
Doch alles. Ach, wir Armen!

4. Give a sketch of the plot of "Minna von Barnhelm."

5. Name the six great literary societies of Germany in the seventeenth century.

6. Who were the principal moralists of the seventeenth century in Germany?

7 Name the works of Andreas Gryphius, Mosherosch, Opitz, Hoffmannswaldau, von Lohenstein, A. U. von Brawnschweig, and Grimmelshausen.

8. Who translated into German the Persian poem "Gulistan?"

9. State what you know of the life and works of Leibniz.

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ANNUAL EXAMINATION.

GERMAN (PASS EXAMINATION).

Examiner: E. DE MONTALK, B-ès-L., Officier d' Académie, etc.

1. Translate into German—

The family in whose house I have dwelt for so many years has emigrated to America.

Count him not among thy friends whose fidelity thou hast not proved.

Did he not go to Australia?

The pen for which I paid twopence is indeed a good pen.

They print more books in Leipzig in one year than in all Russia in ten.

By whom have the Count and Countess been insulted?

I repent having worked for him.

Peter the Hermit wandered from town to town, and from village to village.

Many Crusaders did not reach Jerusalem, most of them were killed by the Turks.

Tears fell from the eyes even of the Spanish soldiery, for they knew and honoured Egmont as a valiant general.

2. What do you know of Grimm and Werner's Laws?

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3. Compare the expressions *Es giebt, es ist, es sind.* Give examples.

4. Name the verbs forming the mixed conjugation.

5. What do you know about the origin of the German Language?

6. Translate into German—

(*a*) I had got up, and softly, on tiptoe, had been as far as the door, to see what was happening outside. The snow had covered everything, the grass, the bushes, the twigs and the trees; as far as could be seen there was nothing but an irregular, though uniformly white, expanse; the sky was studded with glittering stars, but bright though they sparkled, it was snow that showed in the dim light that fell upon the landscape. It had turned cold again, and it must have been freezing out of doors, for the air which came into our hut was icy cold. In the dismal silence of the night an occasional crackling was to be heard, which showed that the surface of the snow was congealing. We had indeed been very fortunate to come across this hut; what would have become of us, in the middle of the forest, in the snow and the cold?

(*b*) Soldiers! You form one wing of the English army. You have fought on mountains, in plains, and at sieges; there remains for you a war at sea. The Roman legions whom you sometimes imitated, but have never yet equalled, fought against Carthage in these seas and on the plains of Zama. Victory never forsook them because they were ever brave, patient in bearing fatigue, disciplined and united amongst themselves. Soldiers, Europe has her eyes upon you, you have great destinies to fulfil, battles to fight, dangers te overcome; you will do more than you have already done for the prosperity of your country, the happiness of mankind, and the glory of yourselves.

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ANNUAL EXAMINATION.

JURISPRUDENCE.

Examiner: HON. J. A. TOLE, B.A., LL.B., Barrister-at-Law.

1. Is the term "Law" completely definable? Give a reason for your answer.

2. Give the chief classifications of "Rights." Distinguish between natural right and positive right.

3. Define "Servitudes," and classify them.

4. Give examples of "Artificial persons." Can they cease to exist?

5. How are Sanctions divided? What do you understand by the statement, "Laws are sometimes sanctioned by nullities."

6. Define and classify "Things."

7. What are the meanings of "Dolus," "Culpa," and "Infortunium?"

8. In relation to rights, discuss the expression "*Volenti non fit injuria.*"

9. Describe the origin of the "*Jus Proetorium.*"

10. What constitutes a "Status or Condition?"

11. Give the comprehensive division of the sources of law. To which division would you ascribe the expression "*Res judicata pro veritate accipitur?*"

12. Could an Act of Parliament making a man judge in his own cause be disregarded by a Court? Give reasons for your answer.

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ANNUAL EXAMINATION.

CONSTITUTIONAL HISTORY.

Examiner: HON. J. A. TOLE, B.A., LL.B., Barrister-at-Law.

1. What is the meaning of "The English Constitution?" How is that Constitution reflected in the political institutions of the colonies?

2. What effect had the Norman Conquest on England?

3. From what period does English nationality date? Give reasons for your answer.

4. Describe the state of the mass of the English nation at the beginning of the 13th Century?

5. Give the most important articles of Magna Charta. Was it founded on any previous Charter, and if so, what?

6. Trace the origin and growth of trial by jury in civil and criminal cases.

7. Explain the "Dispensing Power" and "Suspending Power."

   By what enactment was the exercise of these powers abolished?

8. Discuss briefly the position of Parliament under the Lancastrians and under the Tudors.

9. How may Regencies be rendered necessary? In whom is vested the power of appointment of a Regent? When did the question arise?

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10. State briefly what you know as to the passage of the Reform Act of 1832, and generally, what were its effects?

11. What points were decided in the cases "Stockdale v. Hansard" and "Wason v. Walter;" and what enactment resulted from the decision in the former case?

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HISTORY.

Examiner: Mr. J. H. Turner, M.A.

(Ten questions in all must be attempted, three of which must be from Section A; numbers 2, 4, 6, 8, 12 *and* 13 *are compulsory.)*

A.

1. Give a short account of the conversion of the English to Christianity.

2. Briefly sketch the life and work of Alfred the Great.

3. Describe the events that led to the signing of Magna Charta. What were its chief provisions?

4. Write short notes on: Poyning's Law, Justiciar, Peace of Bretigny, Barnet, Assaye, Loss of Calais, Peace of Amiens, Saratoga.

5. Briefly sketch the growth of British power in India.

B.

6. Explain the policy of Elizabeth with regard to the Netherlands.

7. (*a*) What were the chief events of the years 1572 and 1598? (*b*) How did England become involved in the Thirty Years' War?

8. Who were: Sir Thomas Overbury, Whitgift, Weston, Lambert, Lord Baltimore, Lenthall, Coke, Throgmorton?

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ANNUAL EXAMINATION.

9. Show the importance of Ireland during the period, making special reference to (*a*) The Rebellion of 1598, (*b*) Plantation of Ulster, (*c*) Thorough (*d*) Cromwell's Conquest.

10. Briefly explain (*a*) Darnell's Case, (*b*) Monopolies, (*c*) Bill of Attainder, (*d*) Instrument of Government, (*e*) The Undertakers.

11. How was the expulsion of James II. brought about?

12. Estimate the character of Oliver Cromwell.

13. Describe the state of British Trade during the period.

14. Write a short biography of *either* Francis Drake *or* Robert Cecil.

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POLITICAL ECONOMY.

Examiner: Mr. J. H. Turner, M.A.

1. Explain the following terms: Value, Price, Demand, Seigniorage, Gresham's Law, Market.

2. State and show the importance of the law of diminishing returns.

3. How does the division of labour increase production?

4. What are the causes that make market price differ from normal price?

5. How is the bank rate of discount determined? Explain the significance of its variations.

6. State clearly Ricardo's Theory of Rent.
   Show that profits form no part of the price of manufactured products.

7. What are the advantages of a paper currency?
   What are the objects and provisions of the Bank Charter Act of 1844?

8. What do you consider the best system of taxation for a country like New Zealand? On what general principles would you test its merits?

9. Write a short Economic Essay on one of these subjects:—

   (*a.*) Compulsory Arbitration.

   (*b.*) Old Age Pensions.

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LOGIC.

Examiner: Rev. H. P. Cowx, M.A.

1. Write a brief history of the Science of Logic, mentioning especially any recent additions or improvements.

2. Give the Obverse, Converse, Inverse, and Contrapositive of each of the following prepositions :—

   All gentlemen are courteous.
   No Britons are slaves.

3. Show how you would determine whether a Syllogism is valid or not.

4. How many valid moods are there in the 2nd figure? Why does this figure prove only negative conclusions? Estimate the value of the 4th figure.

5. Use symbols, put into Logical form, and discuss the argument of the Caliph Omar respecting the Library at Alexandria :—

   "If these books are in accordance with the Koran, they are useless, and if they are contrary to it, they are pernicious: let them therefore be burnt."

6. Indicate the importance of Induction, and enumerate the kinds of uniformities which may be established by it.

7. Write out the Canon and give an example of the Method of Residues.

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8. What conditions must a Hypothesis fulfil in order to be considered legitimate? What further requirements must it conform to before it can be regarded as an established Law of Nature? Apply your answer to the Darwinian theory.

9. Enumerate some of the principal fallacies of confusion, explaining the meaning of the technical terms you employ.

10. Write short notes on :—Final cause, Vera causa, "Hypotheses non fingo," Induction "per enumerationem simplicem."

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ANNUAL EXAMINATION.

PSYCHOLOGY AND ETHICS.

Examiner: Rev. H. P. Cowx, M.A.

1. Discuss the statement of Comte, that "Observation by way of introspection is not only useless but impossible." What is the scope of Psycho-physics?

2. What are the general characters of Sensation? What is Weber's law, and how far does observation support it?

3. Discriminate between Active and Passive Memory. Is there such a thing as Total Forgetfulness?

4. Describe the mental processes involved in—(1.) Anticipating a future event. (2.) Inventing a new machine.

5. How does Emotion differ from Sensation? Analyse the emotion of Reverence.

6. Write short notes on Motive, Intention, Fixed ideas, Self-control.

7. How may a man know his Duty, and why ought he to do it?

8. Give examples of the application of the following rules:—"Of two evils, choose the lesser." If two ways are open to you, both of which are right, choose the nobler.'

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9. What different kinds of Sanctions have been distinguished?

10. What arguments have been urged for and against Egoism?

11. Criticise the following argument:—"A man's actions are the result of his character, and he is not the author of his character. Instead of punishing criminals, therefore, society should give them a better education."

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ANNUAL EXAMINATION.

APPLIED MECHANICS.

Examiner: ASHLEY HUNTER, Assoc. M. Inst. C.E.

1. What is meant by the efficiency of a machine?

   A Weston's pulley block has sheaves of 6 inches and $5\frac{1}{2}$ inches diameter, and it is found that a pull of 50lbs. will just raise a weight of 240lbs. What is the efficiency of the block in this case?

2. An incline has a rise of one foot vertical to each $1\frac{1}{3}$ feet horizontal, the total height being 300 feet. What is the total work done in drawing a loaded truck, weighing $2\frac{3}{4}$ tons, from the bottom to the top of incline, assuming the resistance to traction on a level line is 12lbs. per ton?

3. The mean diameter of the screw of a screw-jack is 2 inches, and the pitch of the thread is $\frac{1}{2}$ inch. A man exerts a force of 15lbs. at the end of a lever 20 inches long to turn the screw. Assuming the co-efficient of friction to be $\frac{1}{10}$, what weight could be raised? The friction of the cap to be taken as equal to that of the screw.

4. Three weights of 160lbs., 400lbs., and 420lbs. are placed on a beam of 10 feet span between the supports, at distances of 2 feet, 5 feet, and 7 feet respectively, measured from one support. Find the total resultant load on each support; also the sum of the bending moments at the centre of the span.

5. If a beam one foot long and one inch square, securely fixed at one end, just breaks with a load of 150lbs. applied at the other end, what uniformly distributed weight would just rupture a beam 6 inches deep by 4 inches wide, with supports placed 15 feet apart?

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6. What horse-power is required to move a train weighing 48 tons up an incline of 1 in 120, at the rate of 21 miles an hour; the resistance due to friction being 10lbs. per ton of train?

7. Give an approximate formula for the velocity of flow of water through straight clean pipes.

   What head of water is necessary in order that the flow through one mile of straight, clean, 4-inch diameter pipe may have a velocity of 4 feet per second?

8. The ratio between the tensions of the tight and slack sides of a belt is 5 : 1, and the tension on the tight side is 500lbs. What actual horse-power is being given off by the belt when it is travelling at the rate of 1,000 feet per minute, allowing 5% loss for slip?

9. Give rough sketches of (*a*) a hydraulic accumulator, and (*b*) a hydraulic intensifier, and explain briefly the use of each.

   If in a hydraulic intensifier the respective diameters of the rams are 12 inches and 4 inches, and the water admitted to the cylinder with the large ram is at a pressure of 80lbs. per square inch, what will be the pressure of the water from the smaller cylinder?

10. Explain the relation between friction and heat. What is the mechanical equivalent of heat?

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GILLIES SCHOLARSHIP EXAMINATION.

MATHEMATICS.

Examiner: PROFESSOR H. W. SEGAR.

1. (*a.*) Shew that the common factor, of highest degree in a particular letter, x suppose, of any two expressions A and B, is the same as the H.C.F. of $p\,\mathrm{A} + q\,\mathrm{B}$ and $r\,\mathrm{A} + s\,\mathrm{B}$, where p, q, r, s are any quantities, positive or negative, which do not contain x.

(*b.*) Find the rationalising factor of $ax^{\frac{p}{q}} + by^{\frac{r}{s}}$.

(*c.*) Shew that, when any number of terms of a square root have been obtained, as many more can be found by ordinary division.

(*d.*) Find the number of permutations of n things taken all together, when the things are not all different.

2. Simplify—

$$\frac{a^3(b^2-c^2) + b^3(c^2-a^2) + c^3(a^2-b^2)}{a^2(b-c) + b^2(c-a) + c^2(a-b)}.$$

3. Solve the equations—

(*a.*) $\dfrac{1}{a} + \dfrac{1}{b} + \dfrac{1}{x} = \dfrac{1}{a+b+x}$;

(*b.*) $16x(x+1)(x+2)(x+3) = 9$;

(*c.*) $xyz = a(y^2+z^2) = b(z^2+x^2) = c(x^2+y^2)$.

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4. Prove that the equations

$$x + y + z = a + b + c,$$

$$\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 1,$$

$$\frac{x}{a^3} + \frac{y}{b^3} + \frac{z}{c^3} = 0,$$

are equivalent to only two independent equations, if

$$bc + ca + ab = 0.$$

5. Shew that if $\frac{y^2 - z^2}{b - c} = \frac{yz}{x}$, and $\frac{z^2 - x^2}{c - a} = \frac{zx}{y}$,

then will

$$\frac{x^2 - y^2}{a - b} = \frac{xy}{z}.$$

6. Having given that $\frac{a}{b-c}, \frac{b}{c-a}, \frac{c}{a-b}$ are in A.P.,

prove that

$$\frac{a^3 + c^3 - 2b^3}{a^2 + c^2 - 2b^2} = \frac{a + b + c}{2}.$$

7. (*a.*) Shew that if, from any point on the circumference of the circle circumscribing a triangle, perpendiculars be drawn to the sides, the feet of these perpendiculars lie in a straight line.

(*b.*) Shew how to bisect a triangle by a line drawn through a given point without it.

8. Produce a given straight line so that the square on the whole line thus produced may be double the square on the part produced.

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9. If O be the centre of the circle inscribed in the triangle ABC, and AO, BO be produced to meet the opposite sides in E, F; prove that, if a circle can be described round the quadrilateral CEOF, then the angle C must be equal to one-third of two right angles.

10. (*a.*) Shew that, if θ be the circular measure of a positive angle less than a right angle, θ is greater than $\sin\theta$ and less than $\tan\theta$.

(*b.*) Shew that, in a triangle, $a = (b+c)\cos\theta$, where θ is given by $\sin^2\theta = \dfrac{4bc}{(b+c)^2}\cos^2\dfrac{A}{2}$.

11. If α and β are the two values of θ in the equation

$$\frac{\cos\theta\cos\gamma}{a} + \frac{\sin\theta\sin\gamma}{b} = \frac{1}{c},$$

shew that

$$(b^2+c^2-a^2)\cos\alpha\cos\beta + (a^2+c^2-b^2)\sin\alpha\sin\beta = a^2+b^2-c^2.$$

12. Find $\cos\dfrac{x}{2}$ from the equation

$$\cos x\cos\left(\frac{\pi}{4}-\frac{\beta}{2}\right) = \sin\beta\cos\frac{x}{2}.$$

13. The perpendiculars from the angles of a triangle on the opposite sides meet at O; and OA = x, OB = y, OC = z; shew that $\dfrac{a}{x}+\dfrac{b}{y}+\dfrac{c}{z} = \dfrac{abc}{xyz}$.

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GILLIES SCHOLARSHIP EXAMINATION.

MECHANICS.

Examiner: PROFESSOR H. W. SEGAR, M.A.

1. (*a.*) Prove the formula $s = u\,t + \frac{1}{2}\,a\,t^2$.

   (*b.*) Describe the use of Atwood's Machine.

   (*c.*) Prove Lami's Theorem, viz.:—If three forces acting on a particle keep it in equilibrium, each is proportional to the *sine* of the angle between the other two.

2. The last carriage of a railway train gets loose whilst the train is running at the rate of 30 miles an hour up an incline of 1 in 150. Supposing the effect of friction upon the motion of the carriage to be equivalent to a uniformly retarding force equal to $\frac{1}{300}$ the weight of the carriage, find, first, the length of time during which the carriage will continue running up the incline, and, secondly, the velocity with which it will be running down after the lapse of twice this interval from the instant of its getting loose.

3. A particle is projected at an angle α to the horizon with speed g. Prove that its direction of motion is inclined to the horizon at an angle $\frac{\alpha}{2}$ after $tan\ \frac{\alpha}{2}$ seconds, and at $\frac{\pi - \alpha}{2}$ after $cot\ \frac{\alpha}{2}$ seconds.

4. A, B, C, are three fixed points and P a moving point such that the resultant of forces represented by PA and PB always passes through C; prove that the locus of P is a straight line.

5. (*a.*) Shew that the sum of the moments of two forces about a point in the line of action of their resultant is zero.

   (*b.*) Find the centre of gravity of the perimeter of a triangle.

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(*c.*) Describe the system of pulleys in which each pulley hangs by a separate string.

6. Forces P, P $\sqrt{3}$, and 2P act on a particle: find the angles between their respective directions that there may be equilibrium.

7. If ABCDEF be a regular hexagon, and equal forces act along AB, BC, and DE, find what forces must act along EF, DC, and AF, in order that the hexagon may be in equilibrium.

8. The arms of a balance are of equal length, but it is found that a weight placed in one scale weighs apparently 17lbs., and when placed in the other 16·8lbs., find the real weight of a body which weighs, when placed in the first scale-pan, 11·5lbs.

9. (*a.*) Shew how to find the specific gravity of a mixture of given volumes of any number of fluids, whose specific gravities are given.

(*b.*) Define the centre of pressure of a plane area, and find it for a triangular area immersed with its vertex in the surface and its base horizontal.

(*c.*) Two fluids that do not mix are contained in the same vessel; find the pressure at a given depth in the lower fluid.

10. The weight of a piece of wood is 4lbs., and of a piece of lead in water 4lbs., and of the lead and wood in water 3lbs. What is the specific gravity of the wood?

11. A barometer stands at 30 inches, the vacuum above the mercury being perfect. The area of the cross section of the tube is $\frac{1}{4}$ square inch. If a quarter of a cubic inch of air is now allowed to get into the barometer and if the column of mercury falls 4 inches, what was the volume of the original vacuum?

12. A cylinder of density 2ρ floats with its axis vertical between two liquids of densities ρ and 3ρ, its height being equal to the depth of the upper liquid; prove that the pressures on its ends are in the ratio of 1 to 5.

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GILLIES SCHOLARSHIP EXAMINATION.

CHEMISTRY.

Examiner: PROFESSOR BROWN.

1. How would you ascertain that a given sample of hydrochloric acid contained no free chlorine?

2. Give some account of the allotropic modifications of sulphur. How would you determine the specific gravities of these substances?

3. How are the densities of gases related to their molecular weights? A gaseous hydrocarbon is found to have a specific gravity equal to that of nitrogen gas. What is its formula?

4. Give examples of the decomposition of nitrates by heat, stating the products of the reaction in each case.

5. The passage of sulphuretted hydrogen through a liquid sometimes results in the precipitation of sulphur. Give instances of this and explain the reactions which take place.

6. How is iodine obtained? How is it purified, and what are its properties?

7. How would you separate the copper from the zinc in a sample of brass without the use of sulphuretted hydrogen or other sulphide?

8. Give some account of the chief ores of iron and of their occurrence in New Zealand.

9. Describe the processes by which any two of the following salts are manufactured:—Copper sulphate, potassium chlorate, potassium bichromate, potash alum, lead carbonate.

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PHYSICS.

Examiner: PROFESSOR BROWN.

1. Give a brief description of the making of a mercury thermometer, explaining how the proper quantity of mercury is sealed up within it, how its fixed points are determined, and how it is graduated.

2. If the density of copper at 0°C be 8·95 and its mean coefficient of linear expansion between 0° and 100° be ·000072, what will be the density of the metal at 100°?

3. Describe the method of mixtures used in calorimetry. A kilogram of pounded ice at −10°C is put into four kilograms of water at 70°C. What will be the fall in temperature of the water? Find also the fall in temperature of the water if the experiment be made in a calorimeter of which the "water equivalent" is 20.

   Specific heat of ice = 0·5
   Latent heat of water = 80

4. How may it be proved experimentally that increase of pressure lowers the freezing point of water and raises that of paraffin wax?

5. Define the dew point, and describe some instrument by means of which it may be accurately determined. How does a knowledge of the dew point lead to the estimation of the degree of saturation of the air?

6. Describe fully some experiment by means of which you could ascertain whether horsehair is a conductor of electricity.

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GILLIES SCHOLARSHIP EXAMINATION.

7. Define the electrostatic unit of quantity. Define also the units upon which its value depends.

8. What is meant by "a field of magnetic force?" Two magnets equal in all respects being given, how would you convince yourself that they were equally magnetised?

9. Describe the reflecting galvanometer, and show that the angle of deflection of the ray of light is double the angle of deflection of the mirror.

10. What do you understand by the polarisation of a galvanic battery? Describe any form of cell designed with a view to avoid polarisation, and explain exactly how this is accomplished.

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GILLIES SCHOLARSHIP EXAMINATION.

MAGNETISM AND ELECTRICITY.

Examiner: PROFESSOR BROWN.

1. Explain the exact meaning of the expressions "magnet pole of unit strength" and "uniform field of force of unit strength." Show that in such a field the lines of force are all parallel.

2. In a Coulomb torsion balance, the turning of the torsion head through 180° deflects the suspended magnet 30° from the meridian. How much must the head be turned in order to produce a deflection of 60°?

3. Show that the magnetic force due to a small magnet at any point on its axis produced is inversely proportional to the cube of the distance of the point from the centre of the magnet. How would you submit this proposition to experimental verification?

4. Define the electrostatic unit of quantity. What alteration in its value would result from the substitution of the weight of a gram for the dyne as a unit of force?

5. Upon what magnitudes does the capacity of a condenser depend? Find an expression for the capacity of a condenser.

6. What is the meaning of the term "difference of potential?" Give a careful explanation of a method by which the difference of potential of the two coatings of a charged Leyden jar may be measured.

7. A galvanometer of known resistance is shunted with a wire having the same resistance. If one pole of a battery be

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connected with one terminal of the galvanometer, what point on the wire must be connected with the other pole in order that one-tenth of the current may pass through the galvanometer?

8. A wire of known resistance is immersed in a suitable liquid in a calorimeter, and a given constant E.M.F. can be maintained between its ends. How would you use such an arrangement in order to find the mechanical equivalent of heat?

9. A wire one metre long rotates in a horizontal plane about one of its ends. The rotation takes place in a uniform vertical magnetic field, the strength of which is 100 C.G.S. units. What must be the number of rotations per second in order that an electromotive force of one volt may be set up in the wire?

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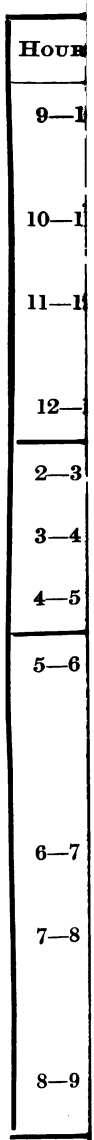

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